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Prospects for the Budget

THERE is no reason for elation, against the background of the *Economic Survey* for 1951, that the national financial year closed with an ordinary budget surplus of £247 million, against the estimated shortfall of £7 million. If current expenditure was only £3,258 million, against £3,455 million estimated before the present re-armament drive, this was largely the result of the running down by the Government of stocks of raw materials and food—which will have to be made good by corresponding expenditure (with much increased prices) apart from the additional needs of re-armament. Net capital expenditure at £473 million was slightly above the estimate, but it is impossible to forecast what more the Government intends in this respect. Current revenue very slightly exceeded the estimate (£3,978 million against £3,898 million), mainly in customs revenue, with a surplus of £35 million due to price increases during the year; this increased revenue may persist. It is mainly in increased expenditure that the coming budget is likely to reveal a very different state of affairs. The estimates of the Government supply departments for 1951-52 show that total current expenditure, including that on re-armament is likely to be some £4,200 million, to which must be added the unknown factor of capital expenditure, assessed generally in the City at £400 million. This will mean that the Chancellor must find something like another £200 million. Increased prices are likely to produce greater receipts from purchase and

similar taxes, and recent wage and salary increases will result in increased income tax. Whether, however, this will produce the amount required is problematical. It was suggested before publication of the *Survey* that the Chancellor might not have to increase taxation—mainly on the basis of optimistic calculations of increased taxation yields. It is now however by no means certain that such yields, even if greater than in the preceding year, will close the gap. Against this, the Government probably by now realises the evil effects on industry, and on the national effort generally, of the present incidence of taxation. It is clear indeed that no reduction in taxes can be hoped for, though continuance of taxation at its present level would in these times be a small mercy; but there is the danger of inflation without this or measures with a similar effect.

British Railways "Quota" Scheme

FROM both the revenue and the staff morale standpoint, much was hoped from the British Railways traffic target scheme with its Regional and district quotas and series of prizes for members of the staff who bring in extra business, as recorded in our January 12 issue. Now, however, the decision has been announced that the scheme must be suspended for the time being. This, in effect, merely confirms what had been operative in fact. There were two reasons for this: an abnormal incidence of sickness (including an influenza epidemic) amongst railwaymen, which has added to seasonal operating difficulties in the winter and spring, and reduced the volume of freight which can be handled; and the coal shortage, which has been the cause of reduced passenger services. In the summer, the sickness rate presumably will return to normal; the prospects, however, of the coal situation (or rather the Government's estimate of that situation) returning to that degree of normality which will allow of an all-out effort to increase passenger traffic, seem rather remote. The Railway Executive, however, has promised that when the way ahead seems clear again, this co-operative effort will be resumed.

African Transport Organisation Deadlock

THE Central & Southern African Transport Conference held in Johannesburg last autumn and reported in our November 24, 1950, issue, was intended to be followed by the establishment of a permanent organisation. Mr. W. Marshall Clark, formerly General Manager of the South African Railways, was appointed Interim Secretary-General of the conference, with headquarters in Johannesburg, and it was expected that he would become Secretary-General of the permanent body. Disagreement between the participating powers which became evident during the conference developed into a deadlock over which should exercise control. The Portuguese, who took the initiative in proposing the meeting, apparently felt that South Africa was seeking to dominate the proceedings and had nominated a chief executive in advance; they asked for meetings of the organisation to be held instead in each member country in turn. The situation could not be resolved and resulted in the collapse of the plan. Mr. Marshall Clark's resignation, as announced in our personal columns this week, has been followed by his acceptance of a position with a prominent mining group. It is unfortunate that differences between European colonial powers have wrecked which seemed to be a promising attempt to integrate African transport south of the equator, and still more that they should have caused the loss to the transport industry of so capable an officer as Mr. Marshall Clark.

A Record U.S.A. Diesel Year

PREVIOUS records for diesels ordered by U.S.A. railways in one year were broken in 1950, when contracts were placed for 4,243 diesel-electric units, 2,372 of which were placed in service. The former totalled 99 per cent. of locomotive orders, as steam locomotives ordered were confined to 15, and electric to 18; the remaining order was that for ten gas-turbine-electric units for

the Union Pacific Railroad. Of the diesels 92½ per cent. are for units with B-B wheel arrangement and 68 per cent. for units of 1,600 or 1,500 b.h.p.; many of these are for assembly as triple or quadruple unit locomotives. With regard to passenger service, something near saturation point has been reached with duties specially suitable for diesel operation; 53·7 per cent. of the passenger train-miles were diesel-worked according to the latest statistics. As a result only 221 passenger units were ordered, mostly of the new 2,250 b.h.p. type, while in the remaining categories the numbers almost tied; 1,319 units were for freight; 1,368 were general-purpose units, adaptable for passenger, freight, and shunting work; and 1,335 were for shunting use. For shunting, the 1,200 b.h.p. unit is now replacing the 1,000 b.h.p. type, and 1,500 b.h.p. and 1,600 b.h.p. shunters are also becoming popular. With constantly improving mass production methods diesel prices tend to decline.

Overseas Railway Traffics

DURING February the Canadian National Railways operating revenues at £14,451,000 fell short of operating expenses by £199,000. The deficit in net revenue compared with a £452,000 deficit in the equivalent month of 1950. On the aggregate C.N.R. operating revenues at £30,086,000 exceeded expenses by £758,000, and the net result was £2,065,000 better than for the previous year, when there was a deficit of £1,307,000. Gross earnings of the Canadian Pacific Railway for February were £1,517,000 higher at £10,318,000 and though there was an accompanying advance in working expenses, net earnings were up by £561,000 at £575,000. Gross earnings for the eight weeks ended February 28 improved by £4,251,000 and net earnings at £1,043,000 compared with a £634,000 deficit in the previous year. Victorian Railways services did not operate between October 16 and December 9 and as a result December traffics were down by £566,411 at £1,299,615.

Rebuilt Rolling Stock for Malaya

ELSEWHERE in this issue are described and illustrated the rebuilt air-conditioned buffet cars recently placed in service on the Malayan Railway. The rebuilding of these coaches forms a part of a rehabilitation scheme to provide passenger amenities such as existed before the Japanese invasion when a regular service of first class air-conditioned coaches had been established. After the liberation of Malaya it was found that considerable damage had been done to railway rolling stock, and only five air-conditioned coaches could be found, four of which were capable of being rebuilt. During the reconstruction a new roof was fitted, with a central air duct, the delivery of air being effected through valves and diffuser plates. In the original design air distribution was effected through a duct, shaped to the roof the full width of the coach, and the air passed into the coach at cantrail level throughout its length. It was considered that in addition to an impression of spaciousness being provided the new design of roof would be cheaper to construct and at the same time the cleaning of the air duct would be facilitated.

A Little-Known Form of Describer

THE article on train describers on the Southern Region by Mr. J. E. Mott in our March 30 issue recalls that there is on the former L.C.D.R. lines a form of combined block signalling and train describing not seen on any other line in this country. Its working often puzzles people near a signal box who try to make out what the ringing signals are intended to mean. They are so different from the better-known standard codes. In these boxes ordinary block bells are not seen. There are, instead, what are in effect single-needle telegraph instruments, each with a bell on the back which sounds once for every beat to right or left of the needle on incoming signals. Originally, this did so on outgoing signals as well, but, later, the circuits were altered to eliminate this. The ordinary block codes are transmitted by beats of the needle to the right and corre-

spondingly ring the bell at the adjacent box. When this process is completed the train routing is described by giving further beats to the right or left in accordance with the single needle alphabet. The ringing thus produced is quite unintelligible to anyone not acquainted with the method of working, though signalmen trained in it handle the instruments with ease.

Rectifiers in Railway Signalling

CONSIDERABLE interest was aroused at a meeting of the Institution of Railway Signal Engineers on February 14 by a paper on the application of rectifiers to railway signalling service. This was read by Mr. L. E. Thompson and the subject was last dealt with in a paper at the Institution by Major L. H. Peter in 1935. Mr. Thompson stressed the point that it was in connection with signalling requirements that the metal rectifier was first developed. Since then it had found many applications, and today, with the selenium type, played a great part in the electrical engineering field. This subject was now quite complex. The paper gave diagrams of various circuit arrangements in which rectifiers could be used. The discussion showed that the several aspects of the use of rectifiers had given rise to much thought. Special stress was laid on the importance of rectifier life, and methods of overhaul which could be applied in the general servicing process, now very usual with most signalling apparatus. The influence of temperature changes was another point brought out and also the possibility of exposure to heat in transit having to be considered when designing rectifiers for certain countries.

Deposit Formation in Locomotive Cylinders

AN investigation carried out by Mr. I. S. Morton and Mr. M. J. van der Zijden with a view to reducing the amount of carbon deposit in locomotive cylinders and piston valve liners is of special interest. In cases where carbon deposit is exceptionally heavy, the fitting of new piston valve liners in replacement of liners which have reached condemning size in the bore can cause considerable inconvenience, with consequent delay to the turn-out of the locomotive from mechanical workshops. Engineers are fully alive to the importance of this subject, and the former L.M.S.R. fitted atomiser equipment to its locomotives before the war, to the design of Sir (then Mr.) William Stanier, Chief Mechanical Engineer, details of which appeared in our issue of January 14, 1938. It was claimed that this equipment not only ensured improved lubrication, with consequent reduction in wear, but also reduced the amount of carbonisation; only the oil delivered to the steamchest was subject to atomising. An article on the subject of carbonisation in steam cylinders appears elsewhere in this issue.

Efficiency of the Gas-Turbine Locomotive

OUR March 2 issue contained an article on the performance of Western Region gas-turbine-electric locomotive No. 18000 on express trains. This set out some hill climbing exploits, chiefly on the steep gradients between Newton Abbot and Plymouth, where the tractive power seemed definitely superior to that of "Castle" or "King" steam units. An article in the *Oil Engine and Gas Turbine* shows, however, that most of the running so far has been at about 50 per cent. of the potential power output. A contributor describes a footplate journey from Paddington to Bristol on which No. 18000 had a tare load of 337 tons, with a gross load of 360 tons, and he states that at 65 to 70 m.p.h. the turbine inlet temperature was 950° F. at 4,400 r.p.m., and that the maximum generator reading at any point was 1,350 amp. at 590 volts. This new locomotive is rated, however, at 2,500 b.h.p., with a continuous generator rating up to 2,340 amp. at 675 volts and a maximum one-hour rating of 2,640 amp. at 760 volts, figures not approached on the run concerned. At the lower power output the gas-turbine locomotive loses in efficiency; the consumption of residual oil has averaged 2·62 gal. a mile, or about 300 gal. in all, on the London-Bristol run, com-

pared with 3 tons of coal by steam. But if comparison were made at the rated 90 m.p.h. on the level of the turbine locomotive and maximum output uphill, then steam would probably lose its advantage in this case.

Hotels Executive Chairman

WHEN Lord Inman vacated the Chairmanship of the Hotels Executive on January 15 it became widely known in transport circles in this country that he was being succeeded by Sir Harry Methven, who was a Member of the Executive and who has had a wide experience in various branches of the catering industry. Some biographical details and a portrait of Sir Harry Methven are reproduced elsewhere in this issue. Notwithstanding that the appointment of the new Chairman was almost common knowledge, the Ministry of Transport has not as yet issued the customary intimation to the press of this action by the Minister. Repeated enquiries of the Ministry drew the response at first that no confirmation could be given; last week it was admitted that the appointment had been made, but it could not be stated when, or if, an announcement would be issued.

It is the only occasion on which the Ministry has not publicly announced the appointment of a Chairman of any of the Executives of the British Transport Commission. That in itself may seem strange, if not discourteous to the new Chairman. There is a good deal of public interest in the Hotels Executive, and it is certainly desirable that publicity should be accorded to appointments of this kind, made by the Minister of Transport under the provisions of the second schedule to the Transport Act, 1947.

We have often suggested that the functions of the Hotels Executive, especially in relation to restaurant cars, buffet cars and railway refreshment rooms, might better be discharged by the Railway Executive, of whose business they are in fact a part. It may be that the Ministry of Transport also inclines to this view or, for other reasons, might wish the existence of the Hotels Executive not to be brought before the public notice more often than it can be avoided, but silence as to important appointments of this kind can hardly be considered desirable. The importance of the matter involved may not be great, but that of the principle is considerable.

Groundwork for Electrification

IT was not in the terms of reference of the Committee on Electrification of Railways to recommend particular routes for conversion. In this respect its report, which was summarised in our March 23 issue, leaves open some of the questions suggested by several authoritative personal views on electrification expressed on various occasions during the past 18 months. Towards the end of 1949 the Institute of Transport heard both Sir Eustace Missenden and Colonel Harold Rudgard speak in favour of main-line electric working on a large scale. Early in 1950 Lord (then Sir Cyril) Hurcomb outlined to delegates at the I.E.E. Convention on Electric Railway Traction the type of electrification programme he personally would like to see. All these comments assumed conversion of much greater mileages than generally had been contemplated. They were followed last December by Mr. S. B. Warder's paper on "Electric Traction Prospects for British Railways" to the Institution of Locomotive Engineers, in which he was able to give a pre-view of the report's finding that in terms of traffic density a further 5,500 route-miles qualified for electrification.

The critical traffic density for main lines, below which electrification would be uneconomic, has been placed by the committee at between 3,000,000 and 4,000,000 trailing ton-miles per annum per mile of single-track running line. This is a revision in the light of present conditions of the figure given in Appendix II to the Weir Report, which quoted 2,300,000 ton-miles on the basis of estimates and calculations prepared from statistics for 1929. A map in the present report shows broadly the distribution of traffic densities over the British Railways system, and may be

studied with special interest in relation to Lord Hurcomb's comment at the 1950 Convention on Electric Railway Traction that what he expected all his hearers would like to see would be a main-line electrification scheme "from London right the way through to the point at which density of traffic begins to tail off." On this basis, and bearing in mind that the traffic density criterion is subject to various qualifications, electrification might extend, for example, from London to Glasgow and Perth by the West Coast route, and to Edinburgh and Aberdeen by the East Coast; to beyond Ipswich and Cambridge from Liverpool Street; and to Plymouth via Bristol, and to Birmingham and Chester via Oxford from Paddington. Plymouth to Penzance by the Western Region is a borderline case, but the fact that Taunton to Plymouth is shown with a minimum density of 4 million to 5 million trailing ton-miles, and for the most part with over 5 million, is interesting considering the decision not to electrify west of Taunton reached by the former Great Western Railway in 1939 after a special investigation of prospects for conversion at 3,000 V. d.c. The report emphasises, however, that the traffic density criterion cannot be applied rigidly to every individual main line, for any such conversion must involve a number of secondary routes for purposes of operating convenience. Moreover, the physical characteristics of the Taunton-Penzance line were found to increase the cost of overhead equipment, while peaks of traffic would require more motive power than a uniform flow of similar density.

The critical figure of density is the traffic level at which, theoretically, the anticipated savings balance the additional fixed costs of electrification. A detailed examination of the economies possible with electrification, arising from simplified maintenance requirements and greater utilisation of motive power, was given in Mr. S. B. Warder's paper to the Institution of Locomotive Engineers mentioned above (see also our December 15, 1950, issue). Large increases of revenue are not foreseen as a result of main-line electrification. Some improvement should be gained, however, from meeting the public demand, which is recognised in the report, for a more frequent service of relatively light and fast express trains. A timetable policy of this kind was urged strongly in our pages in a series of articles between July, 1948, and March, 1949, under the general title of "Shorter Trains and More of Them." A service on these lines would fit in well with the characteristics of electric traction, which shows to the best advantage in conditions of quick turn-round and full use of the high availability of motive power.

No less important than the decision to standardise 1,500 V. d.c. for future electrification on British Railways, except in certain special cases, is the recommendation for the area to be allotted to the Southern Region low-voltage third-rail system. Considering the special features necessary in electric locomotives for third-rail working to avoid interruption of tractive effort or stalling at gaps in the conductor rail, it seems likely that at least some multiple-unit trains would operate on the Bournemouth route if this were to be converted. Criticisms of the riding of this type of stock which are heard from time to time might be more frequent if longer journeys were involved, and such a possibility gives added importance to experiments with flexible drive in motor bogies. A reduction in wear and tear of track might obviate the noisiness and vibration to which some travellers object, particularly if steps were taken at the same time to absorb lateral shocks due to the mass of the motors.

The characteristics of traffic in the Southern Region third rail area are such that it would not be necessary to provide on a large scale for inter-running of low-voltage third rail and 1,500-V. overhead equipment, and for the most part locomotives could be exchanged at the same points as is or has been the practice with steam traction. Short sections of track at these points could be dual-equipped to permit the necessary shunting movements. On the other hand, cross-London freight and van traffic to and from the Southern Region involves circumstances which would make dual-equipped track too costly and a stock of dual-equipped locomotives would be required. Implementation of the London Working Party's proposals for cross-London

passenger and goods services, with through running over existing suburban routes at each end of the deep-level tunnels, also would be effected more economically by dual equipment of motor coaches and locomotives. These requirements had some influence on the choice of 1,500 V. d.c. as the standard voltage rather than 3,000 V., because it is relatively simple to arrange for the operation of motors on 750 or 1,500 volts. The methods of connection proposed are similar to those suggested in an editorial note on dual voltage inter-running in our June 16, 1950, issue.

Extensive research and first-hand investigation into all the main systems of electric traction lies behind the recommendations of the report. Much valuable data regarding electrification abroad has been placed on record, to which we hope to refer in a forthcoming issue, as well as to various technical problems affecting the design of locomotives for passenger and goods services. The report clears the ground for British main-line electrification on long-term principles that are unlikely to be challenged except by some unforeseen technical development or rapid improvement to systems still in the experimental stage.

Transport Management

THE peculiarities of the operating side of transport as a specialised field for the exercise of managerial ability, and the size of the unit as a factor in management, were stressed by Mr. A. F. R. Carling, General Manager of Southdown Motor Services Limited, in his paper "Management and the Size of the Operating Unit" recently read to the Institute of Transport. So much labour, he maintains, is employed by transport, even compared with other public services, that its management is largely a question of man management; and the work is of a nature to appeal to persons of particular types or with particular characteristics, the latter being emphasised or even created by continued service in the peculiar conditions involved.

The first of these differences is shown in the high proportion of staff to total transport costs (illustrated by Mr. Carling from the latest British Transport Commission report) which necessitates a high standard of output per employee. The last is much affected by the peculiar conditions of transport employment, notably: the widespread dispersal of operating staffs, giving more scope for self-expression, with necessarily less supervision; the continuous nature of transport operations, with long hours compared with industrial establishments, which is conducive to "pride of job of a special kind where each man supplies . . . a link in a chain of obvious public importance"; the varying hours of transport duty, with the social consequences of different shift hours, for which, states Mr. Carling, the customary travelling privileges for workers and their families are some recognition; the fact of movement, which appeals to many, including those who like "to be closely in touch with the movements of others"; and the absence of monotony, which involves constantly adapting oneself to differences, so that the devotees of transport duty "have much more than their fair share of the spice of life."

Despite the attractions of transport work, "the effort of many workers seems to have lost the edge of keenness it once possessed." In restoring this, Mr. Carling suggests, the size of the operating unit and the scope allowed to its manager, may be decisive. Taking road transport as an illustration (partly because it is "economically viable . . . on a basis of charge which as yet increases at a much slower rate than most of its operating costs") he shows how smallness was an important virtue of the pioneer road transport concerns, especially in staff relations, and how problems of management in road passenger transport have not been allowed to become excessive merely on account of the size of the undertakings. In dealing with the nationalised railway system of this country, he comments on its great size, adding, "the discharge of this unparalleled task is being attempted with an organisation which at no level below that of the . . . Chief Regional Officers . . . im-

poses personal responsibility other than on a departmental basis." Here he seems to underestimate both the personal responsibility, great within his department of the railway, of the district operating or motive power superintendent or engineer, and the extent to which this inevitable disadvantage attaches to all large concerns.

Human nature, however, has not changed, though the position of the manager has, in large undertakings, and for this welfare activities are no real compensation; nor is it the result of the growth of trades unions. Mr. Carling makes some concrete suggestions for closer managerial contact with the staff, adding "If the unit . . . is too large for such personal contacts . . . then it is likely to be too large for all purposes." Joint consultation, he maintains, tends to be conducted not with the men concerned, but rather with representatives elected for "pressure" (on the management) purposes; and it tends to short-circuit the chain of responsibility. He sets a high value on personal initiative and responsibility, even at the cost of uniformity.

The organisation of the Road Haulage Executive, Mr. Carling considers, with smaller operating units than on British Railways, allows of more personal contact between managers and staff and customers. This is largely because the railways have a higher proportion of non-operating staff, whereas road transport buys its own vehicles and runs them on a highway provided, signalled and maintained by other agencies.

Freedom of action is also desirable for managers, on whose qualifications he makes some trenchant remarks, with a recommendation for reasonable security of tenure in the larger concerns. In the training of executives, he commends as an example the "far-sighted traffic apprenticeship scheme of the old North Eastern Railway." New entrants to the transport industry, states Mr. Carling, will want scope; small or medium-sized units of management will serve this purpose best—providing successive steps for those who wish to climb; teaching the value of local pride and loyalties; and each contributing in an individual way to the total pattern of transport.

Malayan Railway

THE report of the year 1949 of the Malayan Railway, of which Mr. J. O. Sanders is General Manager, shows that earnings of combined services were \$36.9 million, a slight increase on the previous highest total in 1948. Total working expenditure, excluding renewals fund contributions, reached \$33.7 million, an increase of 4.6 per cent on 1948, mainly due to additional expenditure on new works and to a 9 per cent. increase in public train service mileage. Increased working expenditure in providing improved train services merely counteracted the tendency for revenue to fall as the result of the state of emergency and to road, internal airways, and coastal shipping competition. The emergency may be temporary, but the effect of road and coastwise competition on the profitability of services is not new, and is likely to be permanent.

The following are some of the more important figures:—

	1948	1949
	(Thousands)	
Railway		
Coaching train mileage	1,184	1,353
Goods train mileage	1,683	1,784
Passenger journeys	3,823	4,442
Tonnage of goods conveyed	1,589	1,761
	(\$ thousands)	
Coaching revenue	11,062	10,976
Goods traffic revenue	19,615	19,830
Total revenue	31,113	30,060
Working expenditure	27,757	27,961
Road Services		
Revenue	715	745
Working expenditure	700	809
Wharves		
Revenue	3,116	3,777
Working expenditure	2,318	3,218
Ferry Services		
Revenue	324	343
Working expenditure	411	561

Passenger services are no longer profitable, despite fare reductions. Although operating costs for fuel, stores, salaries, and wages rose by 200-400 per cent., post-war increases in standard freight rates vary between 50 and 66

per cent. only. Goods revenue in 1949 was derived from approximately 200 million net ton-miles of traffic at an average of slightly less than 10 cents per ton-mile. An increase in the average freight rate of one cent per ton-mile over the whole range of commodities would establish full profitability for goods traffic, and the average rate would still be substantially lower than the usual road haulage rate. There were increases in export timber, tin and tin ore, and rubber conveyed, though the revenue from rubber traffic suffered from specially reduced rates to retain traffic for the railway.

The special measures introduced in 1948 for the protection of night trains from attacks by bandits and from sabotage were continued. Night mail trains were run at reduced speeds with patrol trains running five minutes ahead in the same section. Trains were in constant wireless communication with police radio stations along the route. The number of night goods trains had to be reduced, entailing delay and loss of valuable capacity for movement of goods. These trains were provided with armoured locomotives and police escorts.

Despite the emergency, however, much of the reconstruction and rehabilitation programme on the open line sections was completed by the end of 1949. The main unfinished work was the relaying of the East Coast line. Relaying on the southern portion of the line had been suspended in October, 1948, because of terrorist activities, but reconstruction of the northern portion made good progress. Rebuilding of the Sentul workshops proceeded.

Day mail trains between Kuala Lumpur and Prai were provided with air-conditioned first class buffet cars. Second class buffet cars were introduced on the night mail trains between Kuala Lumpur and Singapore and Prai. The policy of improving second and third class passenger accommodation was given further effect.

The remaining three of the 20 new diesel shunting locomotives received in 1948 were placed in service early in the year; 172 new wagons received from the United Kingdom were erected, and 66 new wagons built on recovered underframes at Sentul Works and placed in service. The programme for the rehabilitation of machinery and plant at Sentul Works, running depots, and slipways was virtually completed during the year.

Canadian Pacific Railway

THE volume of traffic handled by the Canadian Pacific Railway in 1950 was lower than in 1949, but net earnings from railway operations, although much below those of the war years, were greater than in any year since 1944. In the annual report for 1950, Mr. W. A. Mather, President of the company, states that this was the result of higher freight rates which partly redressed the balance between rates and costs which had become upset since the war.

Gross earnings, at \$378,576,688 increased some \$15,000,000, or 4.2 per cent., as compared with 1949. As a result of increased rates, freight revenue was some \$14,000,000 more than in 1949. Tonnage carried amounted to 53,900,000 tons, a decrease of 2,500,000 tons, and the average haul decreased by four miles to 426 miles.

Railway net earnings for the year were \$38,020,357, an increase of \$17,388,388.

Some of the principal results were:—

	1949	1950
	\$	\$
Passenger revenue	37,796,760	34,927,310
Freight revenue	292,082,977	306,055,749
Miscellaneous		
Gross revenue (including taxes)	363,252,094	378,576,688
Working expenses	342,620,125	340,556,331
Net earnings	20,631,969	38,020,357
Other income	23,636,653	23,236,264
Fixed charges	14,543,817	13,389,610
Net income	29,724,805	47,867,011
Dividends	20,622,768	23,498,648
Balance	9,102,037	24,378,363
	per cent.	per cent.
Operating ratio	91.85	85.51

On March 23, a 16 per cent. increase in freight rates, authorised by the Board of Transport Commissioners, came into effect, but was superseded by a 20 per cent.

increase as from June 16, bringing rates on intra-Canadian traffic up to 45 per cent. above pre-war, but still much less than the rise in the cost of labour and materials.

The dispute between Canadian railways and their organised non-operating employees, culminating in a strike in August, was settled by a decision of an arbitrator on December 18. The seven cents an hour increase sought by the employees was made effective from August 31.

Net income, after fixed charges, amounted to \$47,900,000, an increase of \$18,100,000. After payments of dividends of 4 per cent. on preference stock, earnings available for dividends on ordinary stock and for surplus were \$44,000,000. Dividends aggregating \$20,100,000 (\$1.50 per share) were declared on the ordinary stock out of 1950 earnings.

Working expenses, at \$341,000,000 were \$2,000,000 less than in 1949. The installation of some diesel power helped to keep transport costs lower than would otherwise have been possible in view of wage increases and the increased cost of materials.

Net earnings from shipping operations, at \$3,100,000, increased \$862,000. The *Princess of Nanaimo*, for the Vancouver-Nanaimo service, was launched on September 14. The *Island Connector*, a vessel bought from an Eastern Canadian operator, is being renamed *Yukon Princess* and will ply between Vancouver and Skagway. Net earnings of hotels decreased \$738,000, but those from communications services increased \$365,000.

Canadian Pacific Air Lines had a net profit of \$203,000, compared with a net loss of \$113,000 in 1949. The service to Tokyo was increased to four trips weekly after the opening of the Korean campaign. A new internal service between Edmonton and North Battleford was inaugurated.

Capital appropriations approved during the year totalled \$28,700,000, including \$21,400,000 for new box cars. Approval is requested for appropriations of \$54,500,000 for 1951. New rolling stock (\$41,861,406) makes provision for 40 diesel-electric units, 3,575 freight wagons, 25 parcels vans, and 272 service vehicles. The diesel units consist of 28 road units, for freight service between Calgary and Revelstoke, and 12 shunters.

The new classification yard near Montreal was opened on July 6; the separate yards around the city are being closed. Fifty-eight diesel-electric units for the Schreiber Division in Ontario, and 1,870 freight wagons and 114 coaches were put into service. A new type of coach, the "restaurant sleeper," has been favourably received by the public.

International Railways of Central America

THE report for the year ended December 31, 1950, of the International Railways of Central America, states that business continued at a high level, and total operating revenue, at \$13,466,266, slightly exceeded the previous record total in 1948. Banana revenues showed a substantial decrease because of the almost entire suspension of shipments from areas not protected against disease, and export coffee revenues declined; these decreases were more than offset by the increases in revenues from all other sources. The operating ratio was 83 per cent., compared with 93 per cent. for 1949. Some of the chief results are:—

	1949	1950
	\$ thousands	\$ thousands
Operating revenue	12,395	13,466
Operating expenditure	11,554	11,194
Net operating revenue	851	2,272
Net income, after taxes, fixed charges, etc.	167	1,188

Many demands by the Guatemalan railwaymen's union for increased wages and other benefits are before the courts. In El Salvador labour legislation under the new Constitution is being considered; if enacted, the company may have to negotiate a new collective pact with the railwaymen's union. The programme of additions and betterments was severely curtailed because of the work required to repair the damage caused to property by the floods of the previous year.

Dividends amounting to \$3.75 per share of preferred stock were declared in 1950.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Electrification in Britain

March 14

SIR,—Lt.-Colonel Fell's recent lecture on his diesel locomotive [summarised elsewhere in this issue] contained a passage on which I would like as an ex-employee to comment on, that reading "It was now widely accepted that the British railways should have been electrified long ago."

Electrification on this scale was not a matter easily disposed of, and in any case my impression always was that a paramount consideration was strategic, *i.e.*, the much greater vulnerability to attack of an electrified railway.

Bound up with this also was finance. For decades prior to 1913 the far too low rate of momentum precluded the making of much profit. Goods trains were held up for long periods at various points by signal halts, and it was common for train-men to be on duty 18 hours and more before being replaced and without having progressed far.

In 1913, however, through the initiative of the late Sir Cecil Paget, came the first instalment of what was later to become the highly successful control system, the first control office being installed at Masborough on the then Midland Railway. This held out for the first time the prospect of an adequate return on capital, and much improved wages; and had such accrued I doubt whether a separate goods road service would ever have eventuated.

However, two wars, a big amalgamation scheme, and a very selective road competition put an end to that roseate prospect for good and all, but in so far as the quotation casts any reflection on the railways and their staffs, I would point out that the railways' failure to make good was due to causes entirely outside their control.

Yours faithfully,

H. JAMES

5, Glebe Rise, Littleover, Derby

The Supplementary Reserve

March 20

SIR,—You will no doubt have seen mentions in recent months, both in Parliament and in the Press, of the Supplementary Reserve for the Army.

This Reserve has recently been reconstituted, and we have written to a large number of ex-servicemen explaining the purpose of the Reserve and asking them to consider joining in the Arms or Corps to which they formerly belonged. We have found some difficulty in getting information out to employers in industry, and think that many employers may not be sympathetic to their employees who wish to join this Reserve, because they do not fully understand its object.

The object of the Supplementary Reserve is, broadly, to provide the technical and administrative units needed to form the essential backing to the fighting formations of the Regular Army and the Territorial Army immediately on mobilisation. The Supplementary Reserve is not part of the Territorial Army but an essential complement to it. In structure its units are similar to those of the Territorial Army, in that they consist of basic elements of volunteers to provide the senior officers and N.C.Os., completed ultimately with National Service men during their part-time service. But the units are raised essentially on a trade or "skill" basis and not territorially.

Because members of the Supplementary Reserve will normally be technicians whose military employment will be almost identical with their civilian occupations, and also because of the difference in organisation as compared with the Territorial Army, there is no liability for evening drills or weekend training. The normal training liability is an annual 15-day camp, and in certain cases military training in peacetime is not needed at all.

You will wish to know the position about reserved occupations. The principles and procedure for these will be identical with those devised for the Territorial Army, which have recently been accepted on behalf of both

sides of industry by the Minister of Labour's National Joint Advisory Council. We only enlist volunteers into the Supplementary Reserve provided that they have been cleared in this respect by the Ministry of Labour.

I hope that this letter will give you a clear picture of the object and importance of the Supplementary Reserve and of the essential part which the volunteer element fulfils in this organisation.

Yours truly,

JOHN CROCKER

General.

Adjutant General to the Forces

War Office, S.W.1

Timetable Complication

March 16

SIR,—Surely it is time we stopped fussing about with a.m. and p.m., heavy type figures, and dots and dashes, and adopted the 24-hr. clock for timetables. Or has the ordinary traveller so little commonsense that he cannot be trusted to subtract 12 from 17.30 and arrive at 5.30 in the evening?

Yours faithfully,

MAXWELL TAYLOR

Beechwood Cottage, Greenfield, Watlington

Fluorescent Lighting in Railway Vehicles

March 27

SIR,—Société Electrom, together with the Société Nationale des Chemins de fer Français, has been since 1945 one of the pioneers of fluorescent lighting as applied to railway rolling stock. Trials carried out over several years proved that the Electrom-S.N.C.F. system gave excellent results and patents were taken out covering both Electrom and the S.N.C.F. Following these trials important orders for this equipment have been placed with our company, not only by the S.N.C.F. but also by foreign countries.

Our company is now represented in Britain by, and working in conjunction with, M.T.E. Control Gear Limited, London Road, Leigh-on-Sea, Essex. We therefore wish to make quite clear the following points.

Your issue of February 9, page 156, contains an article on fluorescent lighting on London Transport "R" stock, in which it is said in the first paragraph: "An interesting scheme for the power supply for fluorescent lighting has been developed by the Metropolitan-Vickers Electrical Co. Ltd. in collaboration with the London Transport Executive. It is for the new "R" surface-line stock of London Transport, and is the first large scale application of fluorescent lighting to railway transport vehicles," and states also: "The company is supplying London Transport with 179 generator and regulator equipments described below."

We beg to differ with the above statement, as Société Electrom of Neuilly-sur-Seine in France has already supplied the following equipments with patented dual-purpose booster inverter for application of fluorescent lighting to railway transport vehicles.

French National Railways	...	119	put into service over past two years
	...	350	being equipped
Spanish National Railways	...	40	in service since July, 1950
Algerian Railways	...	77	in service since December, 1950
Tunisian Railways	...	24	being put into service
Luxembourg National Railways	...	10	being put into service
Orders delivered for vehicles not yet ready :—			
Spanish National Railways	...	40	
French National Railways (on order)	...	200	
Total	...	860	

These figures clearly show that Société Electrom's system of fluorescent lighting has been the first large-scale application of fluorescent lighting to railway transport vehicles.

Yours truly,

ROBERT MATHÉ,

Le Directeur Commercial

Société Electrom, Neuilly-sur-Seine, France

THE SCRAP HEAP

Tender Care

A light engine arrived at top speed in Opicina Station on the Yugoslav frontier of Trieste, stopped suddenly, and disgorged the driver's wife from among the coals in the tender. Husband and wife then dashed up to the police and asked for asylum. What happened to the engine is not stated.—From "The Manchester Guardian."

Pride in Their Work

So much has been written about the dirty condition of railway stations and trains that I must in fairness point out the cleanest station I have ever seen—Gants Hill on the Central Line. No traveller need fear leaning against the pillars here, for they are washed and polished, and the floor is mopped each night.—From a letter to the "Evening Standard."

Use of Return Tickets

... So far little or no publicity has been given to the many unique travelling facilities offered as a result of the inter-availability of return tickets on alternate routes combined with the possibility of a break of journey at any intermediate station. ... It is possible ... to travel to the West Country on the "Cornish Riviera" and return on the "Devon Belle"; to visit Cambridge on a monthly return from Bath to Leeds; to visit Manchester at no extra cost on a London-Bradford monthly return. ... There are at least four direct and different routes from London to Manchester, three to Glasgow, Edinburgh, and Aberystwyth, and two to innumerable other places. ...

An effort on the part of British Railways to draw attention by map, poster, and pamphlet to these aspects of our

railway geography, with an intimation of the complete range of facilities which are available, might well produce valuable returns.—From a letter to "The Times."

Station Names

In France many station names are painted in letters several feet high on a hoarding or building about 50 yd. from the line at the approach to the station. On some Regions of British Railways, notably the Southern Region and London Transport, the lamps on every station have a small label carrying the name. Either or both of these methods would do much to assist the traveller.—From a letter to "The Daily Telegraph."

Collectors of Bus Tickets

Why anyone should want to collect bus tickets is almost beyond imagination. Yet people do, and London Transport itself has one of the keenest collectors. Mr. Albert McCall is an inspector on the Green Line bus service, who has interested himself sufficiently to save and catalogue 22,000. He is a member of that unusual body, the Ticket & Fare Collection Society, and his oldest ticket is one issued by the West Metropolitan Tramways in 1884.—From "The Scotsman."

The Voice

Mr. Charles Care, of Seaford, Sussex, is to be measured for a braided coat and three-cornered hat, because, subject to a voice test, he is to be the Seaford town crier during the Festival of Britain, at 5s. a cry.

Mr. Care, a foreman at Seaford Station, was recommended by council members who, over many years, had

been impressed by the power, clarity, and good humour of his announcements of train arrivals and departures. He said yesterday, in a vibrant baritone: "It will be fun."—From the "Daily Mail."

Higher Railway Freights

It is not possible to accept the decision not to hold a public examination of this application without misgiving, even granted the substance of the Minister's arguments. On what ground has a 10 per cent. increase on freight rates been chosen? Is it the intention to do nothing about passenger fares until the long-awaited passenger charges schemes have been considered by the Tribunal (not on this occasion offering advice, but acting as final arbiter) and put into operation? Certainly the comparative levels of freight and passenger charges (assuming that the increase in freight rates now sought is granted) will be rather widely separated, and even after making full allowance for the sensitive response of passenger traffic to changes in fares and standards of service, a large divergence between the two scales—after taking account of differences in operating costs, would not be economically justified. — Extract from "Business Notes" in "The Economist."

Biff and Buff

(The Buffer Twins)

Blest pair of sirens, Biff and Buff,
Who do the British Railways stuff,
Hold amiable argument
With the most laudable intent
Of luring you to do your share
In sampling British Railways fare.

Yet rumour has it that this pair,
Although they speak each other fair
And mutually agree in print,
Vouchsafing not the slightest hint
Of any discord, privately,
Wrangle like Tweedle-Dum and Dee.

On such occasions Mr. Biff
Employs a supercilious sniff,
Which in itself is quite enough
To rile his milder partner Buff.

Says Biff to Buff: "You make me tired,
"If I were boss I'd have you fired:
"Take off that smirk, you sil'y duffer,
"It looks so daft upon a buffer!"

Says Buff to Biff: "You're far too stiff
"And starchy." "Pon my soul!"
says Biff,
"No doubt you think *your* stupid grin
"Will take the British public in!"

In short they have a natural flair
For getting in each other's hair,
But, should a customer come by,
Then, in the twinkling of an eye,
They're on to him with might and main
Until they get him on a train
Then Biff sums up: "Good show—
great stuff!"
"Indubitably, Biff," says Buff.

A. B.

WAY OUT



"Three ha'pence excess on this ticket"

[Reproduced by permission of the proprietors of "Punch"]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Dett-Wankie Deviation

The result of the final survey of the Dett-Wankie deviation shows that considerable earthworks will be involved. The totals are: cuttings, 900 cu. yd., and embankments, 1,250,000 cu. yd. At first it was proposed to drive a 900 ft. tunnel through sandstone between Entuba and Wankie, but it is now expected that this tunnel, which would be costly, can be avoided by introducing curves slightly sharper than the 30 ch. minimum radius laid down for the whole line. The ruling gradient throughout would be 1 in 120.

The contract for the major part of the work from Dett to just north of Lukosi Siding has been awarded to the Rhodesian firm of T. W. Rutland & Son Ltd. That for the Lukosi-Wankie section has not yet been placed.

It is estimated that the whole work, costing some £1,500,000, will take about three years, though, as the new route crosses the existing line at many points, sections of the deviation may be opened as completed.

NYASALAND

Steamer "Ilala II" Launched

On January 28, Lady Colby, wife of the Governor of Nyasaland, launched the steamer, *Ilala II*, which replaces the *Vipya*, sunk in 1946, on passenger and goods services on Lake Nyasa. The vessel, which is expected to go into service this month, is named after the old *Ilala*, brought to the lake in 1875, and built by the same firm, Yarrow & Co. Ltd., of Glasgow.

There are first class cabins for 12 and second class accommodation for six passengers, a third class saloon for 16 men and 12 women, and third class space for short journeys for 350 passengers. Radio-telephone links with seven points at the lake ports will provide con-

stant ship-to-shore communication, as described in our June 9, 1950, issue.

The *Ilala II* will contribute considerably to the development of the lake shore and hinterland, and enable visitors to see some of the most beautiful parts of British Central Africa in comfort and ease. Mr. H. W. Stevens, General Manager, Nyasaland Railways, said that the ceremony was a milestone in the history of the Protectorate.

ARGENTINA

British Employees' Contracts

British employees of the Argentine railways who elected to remain in service after the takeover by the Government of Argentina have now received five-year contracts countersigned by the Ministry of Transport. They date from March 1, 1948, and a summary of the conditions of employment was given in the June 30, 1950, issue. Employees who wish to terminate their contracts may do so after three months' notice, with suitable compensation according to the total years of service, and some have already availed themselves of this facility.

B.A. Port Branch Service Suspended

The passenger service over the Buenos Aires port branch of the D.F. Sarmiento Railway (referred to in the March 25, 1949, issue) has been suspended through lack of patronage.

CHILE

Southern Transandine Railway

Work on the new Southern Transandine Railway has brought the railhead on the Chilean side to 47 miles from the Argentine frontier (see *The Railway Gazette* of November 25, 1949). Official statements have been made in Chile to the effect that the remainder of the line will be put in hand as soon as the Argentine authorities decide to proceed

with the extension of the General Roca Railway from Zapala to Lonquimay, about 78 miles.

The advantages of the new line are that (a) the highest point would be only 1,300 metres above sea-level and would not be blocked by snow in winter as often occurs on the two existing routes; (b) the gauges on both sides of the frontier are 5 ft. 6 in.; and (c) there is a considerable potential traffic of cereals and meat from Argentina to Chile and of wood, minerals, and so on, in the reverse direction. It has been suggested that the Chilean port of Concepcion and the Argentine port of Ingeniero White (Bahia Blanca) should be declared free ports for the goods of the other country.

FRANCE

Wagon Agreement with Germany

The French National and German Federal Railways recently reached agreement on wagon exchange, based on the favourable experience of both these administrations in the hiring of French wagons by the German Federal Railways to enable the latter in the autumn of 1950 to handle increased traffics. The new agreement is a modified version of the European (R.I.N.) convention covering the return of foreign wagons to their parent system.

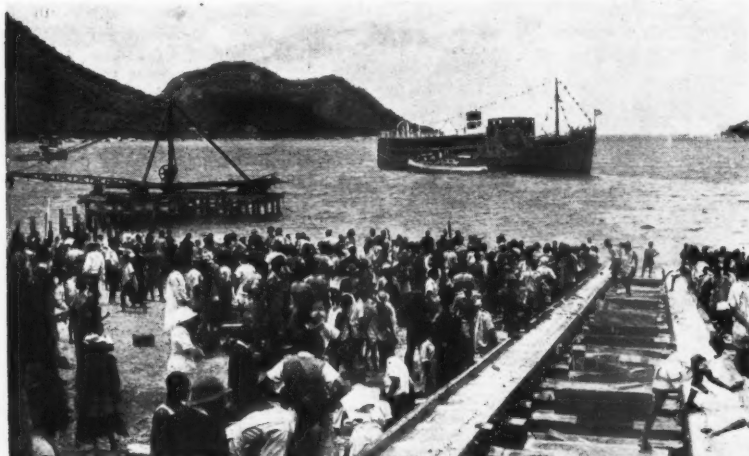
It provides, for instance, that either administration which is a party to the new agreement may retain up to 25,000 wagons belonging to the other for a certain period. Thus in return for a French wagon with a load for a destination in Western Germany another wagon, French or German, available near the frontier, may temporarily be returned to France.

Certain difficulties have still to be solved, such as the problems of repairs and supply of spare parts. It is stated that the French National Railways have an excess of covered wagons inherited from the six French railway companies, whilst there is some shortage of open wagons in France at times; against this, the German Federal Railways lack covered wagons. The new agreement is likely to prove helpful in compensating these deficiencies. Other administrations may adhere to the agreement, with the possibility of the Benelux countries joining first with Italy to follow.

DENMARK

Reopening of Another Line to Germany

Traffic is to be resumed on the five-mile secondary line between Tønder (Denmark) and Süderlügum (Germany). Tønder is the terminus of two lines, one, an east-west link 17 miles long from Tinglev, on the main line from Padborg to Fredericia and the other from Esbjerg. Süderlügum is the terminus of a branch line from Niebüll (six miles further south) from the Hamburg-Westerland main line.



The "Ilala II" on Lake Nyasa after being launched by Lady Colby

Carbonisation in Steam Cylinders

The composition and probable origin of deposits in cylinders and the influence of oil volatility on lubrication

By I. S. Morton and M. J. van der Zijden

THE operating conditions of modern steam engines, particularly locomotives, place severe requirements on the lubricant. In the conventional piston valve engine, running on superheated steam, satisfactory lubrication and protection of reciprocating surfaces must be maintained under the following widely-varying conditions:—

1. Starting, with considerable moisture already present and further condensation for some time.
2. Running under steam, with pistons and rings rubbing on the cylinder walls at speeds up to 1,500 ft. per min. or more in the presence of steam varying in pressure and quality during the operating cycle. (The piston valves and rings must also be lubricated: though the rubbing speed is much less, the maximum steam conditions are more severe, ranging from 180-280 lb. per sq. in. and 650-750° F. total temperature).
3. Coasting or drifting, at speeds from the maximum downwards, in the presence of low-pressure steam, flue gas, or air, according to design and driving practice.
4. Standing, when undue corrosion in the presence of moisture and air must be prevented.

Abnormal Wear

These severe demands are substantially satisfied by high-grade cylinder oils. Engine failures in service attributable to faulty cylinder lubrication are very rare, and 30,000-40,000 miles can usually be run before attention is required because of ring wear or deposits. However, complaints are occasionally made of abnormal wear and deposit formation, and the present drive towards increasing locomotive availability would also be assisted if the periods between cylinder examinations could be increased. It may be added that, though many stationary steam engines show little wear or fouling after years of operation, wear or deposit troubles occasionally arise despite the generally easier operating conditions in stationary practice. This article, therefore, considers some aspects of cylinder lubrication, particularly features of the oil itself and deposit formation.

The deposits found in locomotive cylinders are known to all locomotive engineers, and reference has been made to their occurrence and nature from time to time.¹⁻⁷ It has usually been claimed that their formation has been examined and become fully understood, but complaints and discussions with locomotive operators have shown that, although past explanations may be correct, they have not always reached, or been appreciated by those most concerned. Only vague references to the oil being burnt or carbonised into black

deposit are made, and it is felt that a further review and the publication of the results of a recent investigation will be of use.

Source of Deposit

The most important point made in previous papers is that the terms burning and carbonisation of the oil are erroneous, since the bulk of the deposit derives from sources other than the oil. Analyses have been made showing that ferrous material, boiler salts, and fuel ash are important components. The proportions varied considerably in different cases; on one railway the iron oxides varied from 32-78 per cent., while on another the iron oxide was not greater than 10½ per cent., the remainder of the deposit being described as 12½ per cent. thick brown oil and 77 per cent. non-oily combustible matter.

It had been concluded that the deposits were formed by wear products from the engine, material from the superheater tubes, boiler salts carried over from priming, and matter from the smokebox all adhering to oil or oil residue on the engine parts and being baked into a hard deposit.

Attempts have been made to remedy matters by improved lubrication arrangements and alterations to design or driving practice. It has been considered that the formation of deposits will be encouraged in positions where oil tends to accumulate, and lubrication systems have been devised to distribute oil in the minimum quantity but as uniformly as possible. Both mechanical and hydrostatic lubricators have been used over a long period, and various claims made for their relative effectiveness. It has been widely held that the hydrostatic lubricator was associated with less, or softer, deposits, but the mechanical lubricator has gained ground in recent years and the last large users of the hydrostatic type of

lubricator in the United Kingdom have recently changed over.

The mechanical lubricator has the advantage of metering the oil in accordance with the number of strokes, and modifications have been made in the method of delivering the oil to overcome presumed disadvantages. Solid feed direct to the main and valve bores is not employed alone on modern engines; some of the oil is either fed to an atomiser in the main steam pipe or is passed through an "anti-carboniser" or "atomiser" in which it is mixed with steam before being introduced to the valve chest and main bore. By such means it is considered that the oil is better dispersed over the working surfaces without local excess.

Eliminating Formation of Vacuum

The presence of matter derived from the fuel, and the pronounced tendency for the deposits to be worse on the exhaust side of valves, early suggested that the trouble was much aggravated by sucking back from the smokebox when the engine was drifting, i.e., running with steam shut off. Experiments showed that the cylinder temperature might rise by 50-100° F. under these conditions, and confirmed the theory. Attention has, therefore, been paid to eliminating the formation of a vacuum in the cylinders by the use of various kinds of anti-vacuum valves or snifting valves to admit air to the cylinder, or by-pass valves equalising the pressure on both sides of the piston.

The varying practices of the different railways, the unusual cleanliness of certain types of locomotives, and the trouble experienced with others for no obvious reason, suggest that the ideal solution has not yet been reached. An interesting scheme used in France is to introduce low-pressure steam into the exhaust passages when coasting, thus attempting to suppress the vacuum and keep the temperature down.

Instructions to drivers may cover (1) attention to water level and blowdown to minimise priming and (2) procedure when drifting. Thus, on one system the driver is instructed to place the reversing lever for about 45 per cent. cut-off and admit some steam at low pressure, thereby reducing the vacuum to a degree with which the anti-vacuum valves are expected to cope. The use of regulators with pilot valves for drifts certainly seems advantageous for more than one reason; the engine may ride better and the complete exclusion of air appears desirable to prevent the possibilities of corrosion in cylinders and superheater tubes suggested by the very high proportion of ferrous material in some deposits.

Despite past experience and the precautions just described, deposits still

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- ⁵ Kay: "Mineral Oils and Lubrication." *J. Inst. Loco. Eng.*, Vol. 20, 1931, p. 540.
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- ⁷ "Cylinder Wear." *The Railway Gazette*, January 14, 1944, p. 40 (also subsequent correspondence, July 28, 1944, p. 82, September 1, 1944, p. 207, and February 16, 1945).
- ⁸ "Atomiser Cylinder Lubrication for Locomotives." *The Railway Gazette*, January 14, 1938, p. 66.

occur. They may be found to some degree on all except the rubbing surfaces of the cylinder assembly. In a recent examination of a number of locomotives, the bores were all in satisfactory condition, with good surface finish and negligible scoring. All the rings were free in their grooves, though some deposits were present. Deposits were also found on piston heads, cylinder covers, and so on, but much the most noticeable amounts were on the exhaust

much higher than that of the original oil, suggesting that the organic part of the deposits was not primarily formed by oxidation but by cracking,* or by the ingress of additional carbon from the smokebox as soot. The formation of such deposits may be assumed to take place as follows: when the engine is drifting, a partial vacuum is formed in the cylinders and when the valves open to exhaust, hot front-end gases, containing both organic and inorganic

organic materials as the samples obtained from the locomotives.

The composition of the ash indicates that the presence of softening agents and natural salts in the boiler water can considerably increase the formation of deposits. In view of the large total quantities of deposit in the engines from which the samples were taken, it is unlikely that the high percentages of iron are due only to wear debris from the cylinders and pistons. It is probable that iron oxide from the inside of the steam lines was carried along by the steam as very fine particles and contributed to deposit formation.

Some evidence for this supposition was obtained in a number of tests in an experimental horizontal single-cylinder double-acting slide-valve steam engine of 6 in. dia. by 4 in. stroke, using steam at a pressure of 85 lb. per sq. in., of which the temperature could be accurately regulated between saturation and 840° F. (450° C.). This engine was connected by a 65-ft. steam pipe to a main steam line, the steam being supplied by a large-capacity boiler installation. Throughout these tests the same mineral oil was used. In a number of 100-hr. tests it was found that initially deposits were formed on the piston and valve. The analysis of these deposits is presented in Table 3, from which it will be seen that piston deposits from this engine show approximately the same analysis as the deposits obtained from the other steam engines mentioned before.

The wear in the experimental steam engine was negligible, compared with the amount of iron in the deposits, showing that the latter must have derived from elsewhere. In further tests, when all working conditions were kept constant, the total quantity of deposit on valve, valve ports, piston, and cylinder head decreased from test to test, until finally not a trace of deposit

sides of piston valves and in cylinder ports and blast pipes.

Certain locomotives appeared more liable to trouble than others, and in one particularly bad case the deposit on the exhaust side of the piston valve heads was about $\frac{1}{2}$ in. thick, and the ports noticeably reduced in area, say by 15-20 per cent. The removal of such deposit is an accepted shop and shed routine. A typical practice includes removing the valve heads from their spindles and heating them to just below red heat until the deposit is eliminated. Ports and blast pipes are cleaned by chipping or burning. The deposit on the valves may make withdrawal difficult unless it is done while the engine is hot.

From the foregoing it will be appreciated that deposit troubles are still encountered on a scale which merits further study of the factors involved. The ensuing sections of this article are, therefore, concerned with a more detailed study of the relation of deposits and wear to the oils used.

Deposit Formation

In order to obtain an insight into the possible causes of deposit formation in cylinders and on pistons and valves, deposits formed during normal running of some locomotive and stationary engines were analysed, and the results for the locomotive samples are presented in Table 1.

The deposits from these locomotives generally contained only a small percentage of oil, but a very high ash content. The small quantity of oil present was not severely oxidised, confirming that it is wrong to consider the oil burnt. The proportion of carbon to hydrogen in the oil-free deposits was

material, e.g., soot and smokebox ash, are drawn in and caught by the oil, forming an oily paste.

On a clean metal surface the oil is regularly removed by the steam, and fresh oil deposited. This is probably much more difficult when a paste is formed by the mixing of smokebox material and boiler salts with the oil. The same oil is then repeatedly subjected to high temperatures resulting in cracking of the oil and formation of carbonaceous deposits. Experience has shown that over-oiling results in more

TABLE 2 ANALYSIS OF DEPOSITS FROM STATIONARY STEAM ENGINES

Sample	Ash content per cent. by wt.	Composition of ash			
		Fe as Fe ₂ O ₃	Ca as CaO	Mg as MgO	Si as SiO ₂
Deposit from piston of high pressure cylinder of triple-expansion engine	42.4	38.4	32.1	5.9	3.0
Deposit from high pressure cylinder of triple-expansion engine	28.2	66.0	5.6	2.7	—
Deposit from piston of steam engine working with slight superheat	39.5	89.0	—	—	—

deposit formation, presumably because more smokebox material is caught when a thicker oil film is present. Thus, it will be clear why properly-functioning circulating valves or drifting throttles should be able to prevent the formation of deposits of this kind, and that the oil itself can hardly be blamed for the trouble.

Analyses of the deposits from stationary steam engines are given in Table 2. They show the same high content of in-

* Cracking is a high temperature process which breaks up heavier or larger hydrocarbon molecules into smaller ones, often altering their internal structure.

could be recovered. The most likely explanation is that in the beginning of the tests iron oxide particles were removed from the new steam line used to connect the engine to the main. After this line had become clean, not a trace of deposit was formed on piston or valve, even at steam temperatures as high as 790° F. (420° C.). This, again, indicates that the inorganic material (in this case Fe₂O₃) caught by the oil is the primary cause of deposit formation.

Even in as short a time as 100 hr. the cracking of the oil with subsequent formation of an insoluble material with a high carbon content occurred. The de-

TABLE 3—ANALYSIS OF DEPOSITS FROM EXPERIMENTAL STEAM ENGINE

	Oil-free residue			
	C per cent. by weight	H per cent. by weight	Ash per cent. by weight	Fe ₂ O ₃ content of ash, per cent. by weight
Deposit from cylinder of experimental steam engine after 100-hour run at 610° F. (320° C.) steam temperature...	60	6	29	50
Deposit from slide valve of same engine after 100-hour run at 610° F. (320° C.) steam temperature ...	2	Trace	About 100	92
Deposit from piston of same engine after 100-hour run at 790° F. (420° C.) ...	41	3.2	54	About 90

posit formed, therefore, consists of a mixture of iron oxides and oil deterioration products. When no iron oxide particles were present in the steam no deposit formed in a 100-hr. run.

Volatility of Steam Cylinder Oils

Apart from the effect of hard deposits on abrasion, wear of moving parts of a steam engine may be influenced by the volatility of the lubricating oil, the quantity of oil used, and its ability to lubricate. When superheated

lubrication is obtained at the same steam consumption and the same degree of superheat when the quantity of oil per h.p. is increased. There is, however, a practical limit to the degree of superheat that can be applied if oil consumption is to be kept within reasonable bounds, particularly where other circumstances tend to produce deposits.

Volatility of oils can be determined by distillation under high vacuum or with steam. The figures found in this way may give information on the com-

cylinder oil on the basis of these analytical figures. Fig. 1 shows a special apparatus, developed by Heitmann, with which it is possible to test the lubricating value of steam cylinder oils under superheated steam conditions.

In a cylinder (1) of 3½ in. dia. a double-acting piston (2) is reciprocated by an electric motor (3) via a crank (4). The cylinder has a port for steam entry (5) and three exhaust ports (6, 7, and 8). The cylinder is open at one end so that its wall can be inspected during running. A lamp (9) is provided for lighting. A narrow oil pipe cut at a right angle to the axis projects in the centre of the steam line to the engine. The oil is fed by means of a mechanical lubricator "Mollerups pump" (10). The piston of this pump is slowly screwed down by means of a worm. The movement of this worm is controlled by a rod (11) which is actuated via a crank by the electric motor. The oil feed is regulated by varying the stroke of the rod. A superheater is provided to heat the steam up to 930° F. (500° C.) if necessary.

When the apparatus is started it is heated up quickly by closing exhaust ports (6) and (8) and opening port (7). The steam temperature is gradually raised until the oil film on the cylinder wall disappears completely. At this temperature, which for some low volatile oils may be in the order of 120° F. (50° C.), all the oil injected into the steam line evaporates completely. When this point is reached, firing of the superheater is stopped, exhaust port (7) is closed, and (6) and (8) are opened. The steam temperature as recorded by thermometer at 12 drops slowly. At a certain point oily streaks reappear in the cylinder. These streaks grow wider until they unite and the whole cylinder wall is lubricated. The temperature at which this occurs is called Full Film Formation Temperature.

Experiments

In the apparatus described some experiments were carried out with steam cylinder oils at different oil feeds. In each case the highest cylinder temperature at which a complete oil film was formed on the cylinder wall was recorded.

It can be seen from the results in Table 4 that large differences exist between these oils as regards their ability to lubricate at high steam temperatures. The viscosity at 100° F. does not give any indication of this property. The

(Continued on page 383)

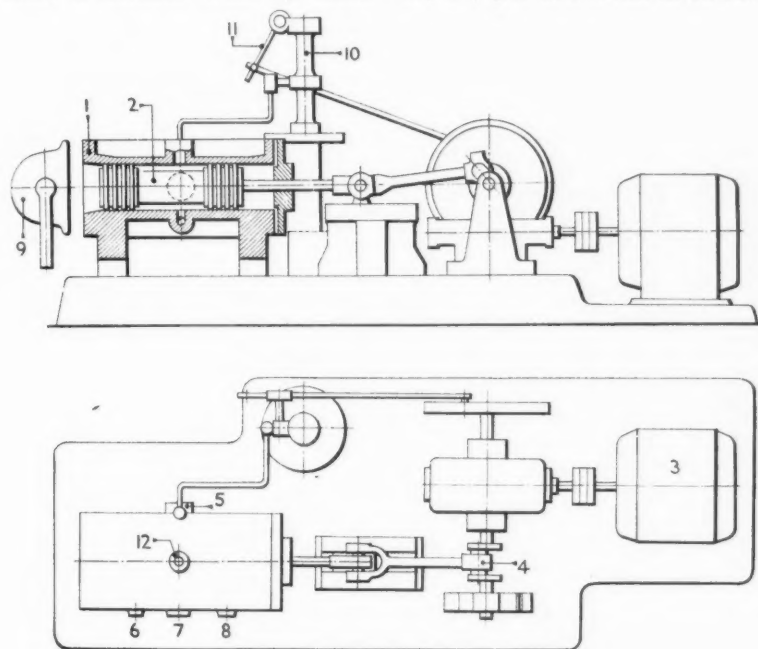


Fig. 1 Apparatus for testing steam-cylinder oils

steam is used, the volatility of the oil may have a great influence on wear of piston rings and cylinders. Under highly superheated steam conditions the parts to be lubricated are at a very high temperature, while the oil is fed into the steam in small quantities and is finely dispersed in it. This offers a good opportunity for evaporation of a great part of the oil. It is not surprising, therefore, that for lubrication of steam engines run with highly superheated steam, only the least volatile oils are suitable.

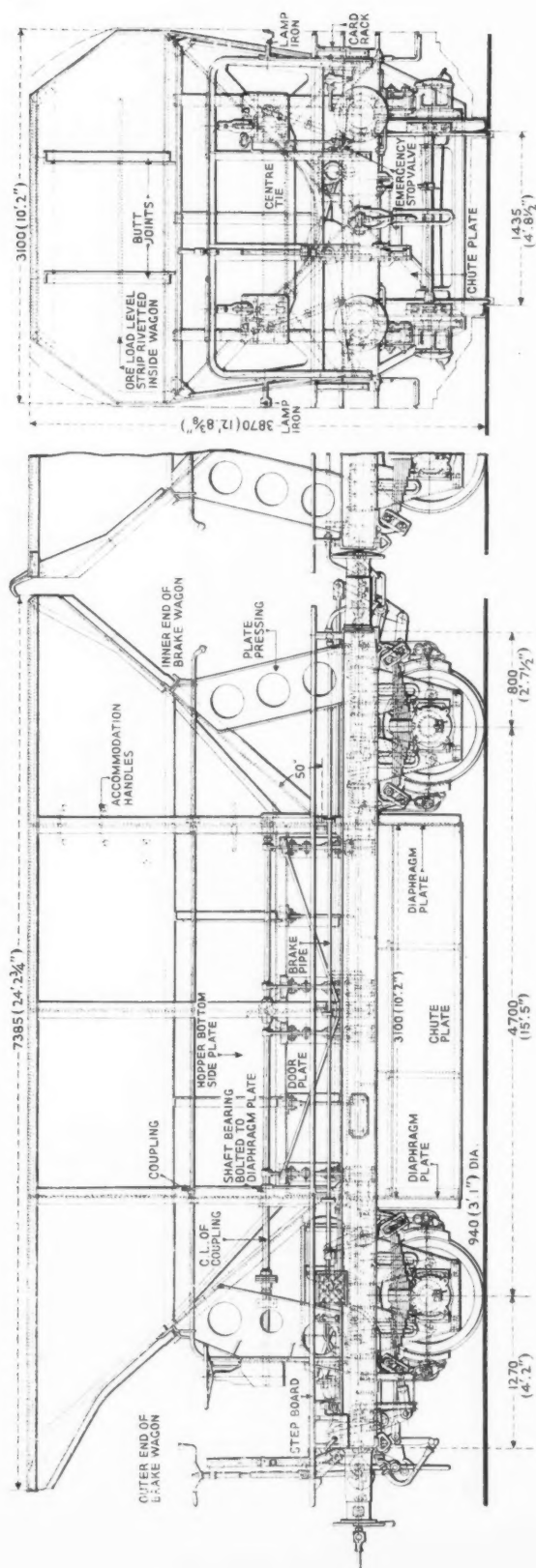
When the quantity of oil per h.p. is increased more oil arrives at its destination. It is evident, therefore, that under critical lubricating conditions better

parative behaviour of oils used for steam engines running with highly superheated steam. However, it is difficult to predict the behaviour of a steam

TABLE 4

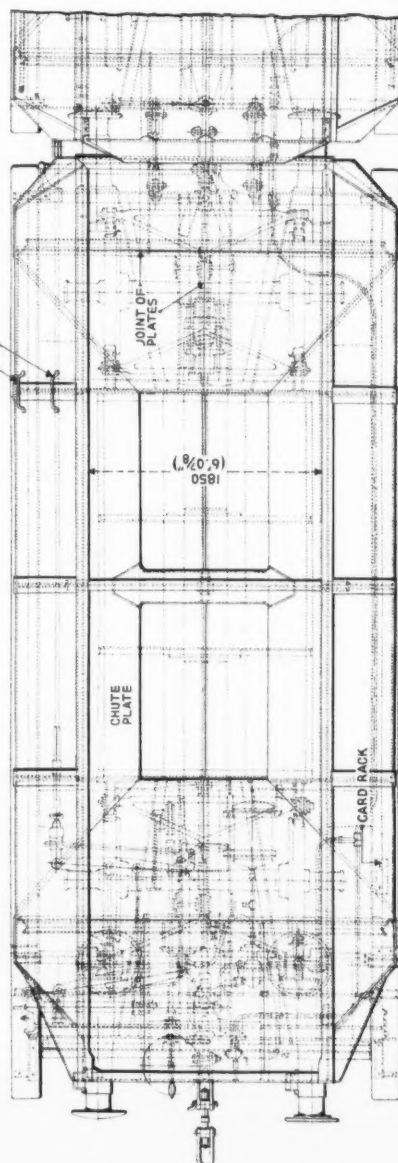
Oil	Viscosity of oil in centistokes at 100° F.	Full film formation temperature at an oil feed of							
		2½ m.l./hr.		5 m.l./hr.		12½ m.l./hr.		25 m.l./hr.	
		°C.	°F.	°C.	°F.	°C.	°F.	°C.	°F.
A	1,600	245	473	285	545	320	608	365	689
B	1,040	220	428	245	473	270	518	310	590
C	500	230	446	255	491	290	554	330	626
D	1,870	190	374	205	401	230	446	245	473

Twin Hopper Wagons for Turkey



(Above) Side and end elevations of the twin hopper wagons built for the Turkish State Railways

(Left) Plan showing the extent of the overlapping arrangement between the wagons to prevent the discharge of materials on to the track during loading



Twin Hopper Wagons for Turkey

Standard gauge design for continuous loading of minerals from overhead feeders

AMONG the orders recently completed by the Metropolitan-Camell Carriage & Wagon Co., Ltd., Birmingham, is one for 100 twin side-discharge hopper wagons for the Turkish State Railways. Wagons of a similar design were supplied to Turkey by this firm during the early part of the recent war.

Designed primarily for carrying mineral ores and coal, continuous loading from overhead feeders is made possible by the introduction of an overlapping lip which covers the gap between the wagons, preventing discharge on to the track during loading operations. The wagons are built for operating on the 4 ft. 8½ in. gauge and contain a number of features incorporating British and Continental design. The wagons are exceptionally large for the gauge, having an overall height of approximately 12 ft. 8 in., and capable of carrying a load, in pairs, of 52½ tons.

A feature of their design is the permanent coupling of the wagons in pairs, an arrangement which has certain advantages, it being possible to make the wagons of lighter construction, since the maximum bending moment between the axles is less than would be obtained on a bogie wagon of similar capacity; the maximum curve to be negotiated has a radius of 315 ft.

The principal dimensions of the twin unit are as follows:—

Length over buffers ...	49 ft. 5½ in.
Width over stanchions ...	10 ft. 2 in.
Width over running boards ...	10 ft. 4 in.
Rail to top of hopper side ...	12 ft. 8½ in.
Cubic capacity ...	2,119 cu. ft.
Tare weight ...	26.4 tons
Loaded weight ...	78.8 tons
Journal size ...	10½ in. by 5½ in.
Wheel dia. on tread ...	37 in.

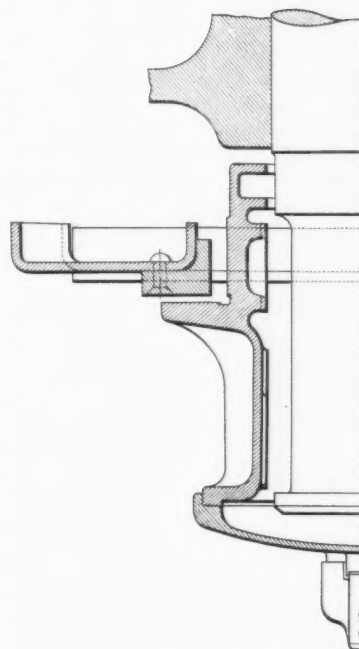
The wagons are of all-steel composite construction from rolled sections, pressings, and plates. The structure may be divided conveniently into two main sections; the underframe, and the hopper,

with stanchions, web plates and so on. The underframe is fabricated almost completely from rolled-steel channel sections. The headstocks and solebars are 12 in. × 3½ in. × 25.25 lb., with diagonals, crossbars, and longitudines 9 in. × 3½ in. × 22.27 lb., the whole being welded together to form an integral unit. The two large spaces necessary for the discharge chutes to be housed make it essential that the hopper structure contributes to the strength and stiffness of the whole wagon. This has been arranged, and the resulting complete structure is an extremely sturdy job, capable of withstanding severe service conditions.

Easy to Repair

The hopper plates and sections are joined by riveting and bolting, the assembly of the larger components being left until final erection in Turkey. This form of construction has the advantage of being considerably easier to repair after some years of service than an all welded unit. The upper side and end-plates are ⅝ in. thick, the lower plates and chutes are ⅜ in. and ¼ in. respectively, and the hinged doors are plated with ⅝ in. thick plate. All the hopper plates are of steel to B.S.S.8 and have a tensile strength of 35 tons per sq in.

The operating mechanism for the discharge doors is of standard design worked by hand wheels, one on each side situated on the end platform. The gearing is of the worm and worm-wheel type with a 20 to 1 reduction ratio, turning a torsion shaft on which the levers to the doors are keyed in position. It is thus possible to open either or both doors at once. An important feature in the production of the wagons is the high degree of interchangeability required of all parts to be assembled in Turkey, and those likely to require renewal at certain periods during service life. With this in mind all components have been carefully

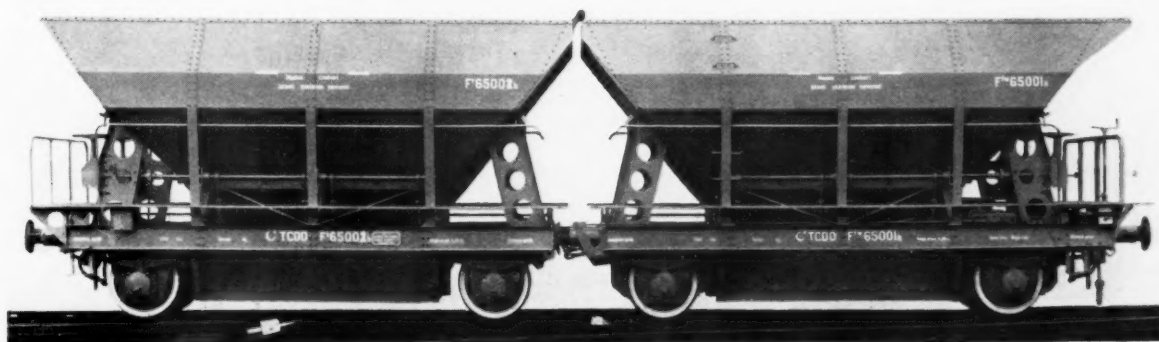


Part sectional plan showing the axlebox guide arrangement

jigged and inspected at important stages in production.

The buffing and drawgear generally follow Continental practice, with buffer faces alternately domed and flat, and springs of the para-volute type. The buffer springs have a travel of approximately 3½ in. under a load of 12 tons. Drawgear is of the through type, with springing also provided by para-volute springs and the normal screw coupling with safety hooks at the outer ends of each pair. Vertical suspension is by four-leaf springs mounted above the

(Continued on page 386)



Twin unit coupled as for service; the buffer arrangement is clearly shown

Rebuilt Air-Conditioned Coaches for Malaya

Replacement of war-damaged rolling stock

THE advantages of air-conditioning are not always appreciated in temperate climates with short hot seasons, but where heat with dust or high humidity are the normal everyday climatic conditions, air-conditioning is most welcome, and has probably done more than any other amenity offered by a railway to attract and retain the goodwill of passengers.

Such has been found to be the case in Malaya, where the Malayan Railway, formerly the Federated Malay States Railways, is faced with keen competition. A first-class main trunk motor road parallels the railway between Singapore and Penang, whilst regular air services operate between all the principal towns and provide two

flights daily in each direction. The proximity of the sea results in further competition from steamer services.

Climatic Conditions

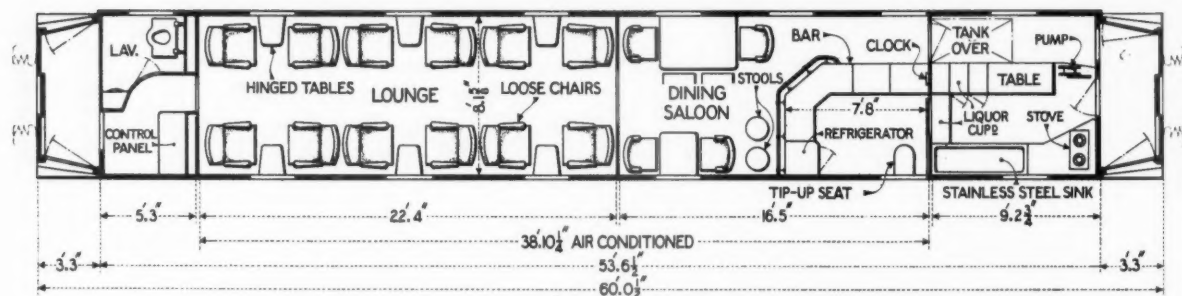
Although the area is between the 1st and 6th parallels north of the equator, extremely high temperatures are rarely encountered, but because of the proximity of the sea, the high rainfall, and the dense jungle, conditions of extremely high humidity exist. Such a climate, which varies little throughout the year, lends itself to air-conditioning, and the Malayan Railway, before the Japanese invasion, had established a regular service of air-conditioned first class coaches on its principal trains. The first two to be placed in service

were built in the United Kingdom, the remainder being built at the railway workshops, the underframes and air-conditioning equipment only being purchased in the United Kingdom.

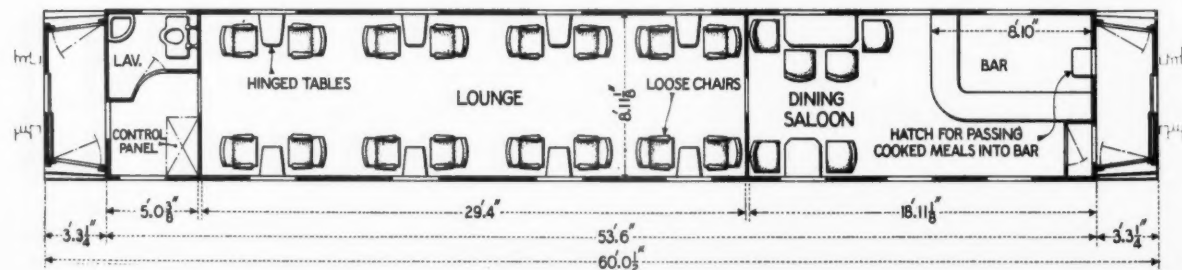
Five coaches only could be found on the liberation of the country in 1945. The bodies were mere shells, the whole of the fittings, panelling, doors, and windows having been looted. Further damage had been exacted by the weather on the exposed interior woodwork. After a careful survey had been made, it was decided that four of the five coaches could be re-conditioned, and materials for their repair were ordered. These began to arrive in 1948 and the construction of the coaches was taken in hand and subsequently



Exterior view of air-conditioned buffet car for the Malayan Railway



Layout and principal dimensions of reconstructed air-conditioned buffet car No. 962



Layout and principal dimensions of reconstructed air-conditioned buffet cars Nos. 963 and 964

placed in service in September of that year. Three of the four units, all operating as buffet cars, are now in regular service.

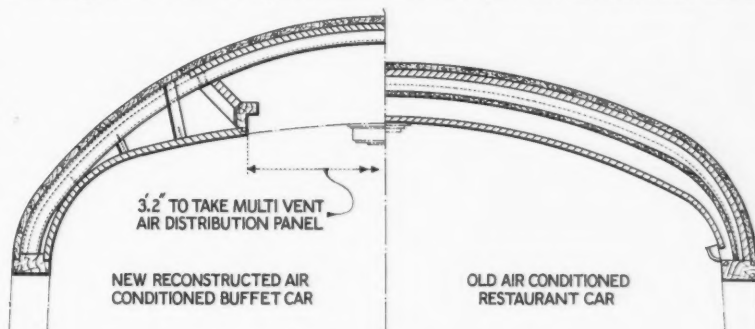
Construction Details

The roofs of two of these coaches had been very badly damaged, and in rebuilding them the administration decided to redesign the air distribution system. In the original design air distribution was effected through a duct shaped to the roof the full width of the coach and the air passed into the coach through slots at cantrail level throughout its length. A metal lip and adjustable damper plates were used to divert and regulate the flow of air. Objections to this design were cost of construction, impossibility of avoiding draughts, and the difficulty in cleaning out the duct.

During the reconstruction a new roof was fitted with a central air duct and delivery of the air effected through valves and diffuser plates. Comparison of the original and redesigned roofs is shown in the diagram opposite. It will be noted that, whilst the general interior roof shape has been retained, advantage has been taken of the available exterior space within the loading gauge. In the one case, the cantrail break gives a somewhat squat appearance, but in the other an impression of spaciousness is achieved. The colour scheme in these

coaches is carried out in restful shades of grey and blue. The walls have been given a rough-cast plaster effect in dark grey at the floor line fading to a light grey at the ceiling. The chairs are lacquered in grey and upholstered in blue material, and the same colour has been adopted for beadings and curtains.

building space caused by damage during the allied bombing in 1945, it was necessary to obtain the complete coaches from this country. They are being built by the Birmingham Railway Carriage & Wagon Co. Ltd., Smethwick, under the supervision of the Crown Agents for the Colonies, and to



Comparison of the original and redesigned roofs

A diamond patterned black and grey Wilton pile carpet completes the finish.

In order to re-establish the previous facilities, three buffet and four *Wagon-Lits* type coaches have been ordered from the United Kingdom. Manufacture would normally have been undertaken at the Sentinel works of the railway as in the past, but, owing to the lack of

the designs and specifications of Mr. W. F. Wegener, Chief Mechanical Engineer, Malayan Railway. The new units will be fitted with the latest type of air-conditioning equipment, fluorescent lighting, and water raising apparatus, and the buffet cars will, in addition, be fitted with electric refrigerators.

Carbonisation in Steam Cylinders

(Concluded from page 379)

figures found are of interest for the comparison of different oils, but do not indicate the highest temperature at which these oils can be used in a large-scale steam engine. It is evident that the quantity of oil has a pronounced influence on the maximum temperature at which a complete oil film can still be formed. When the film formation temperature is plotted against oil feed as shown in Fig. 2 it is found that the effect of increased oil feed tends to fall off at higher temperatures.

Conclusions

The information presented may be conveniently summarised in the following conclusions:

1. Previously published information has correctly indicated the causes of deposits in engine cylinders, namely, the adherence and subsequent baking-on of fuel products, ferrous material and boiler salts to hot oily surfaces. The oil may undergo some cracking, but is little oxidised, and its role in deposit formation is subsidiary.

2. Sucking-back when drifting largely contributes to deposit formation, and design and driving methods have been developed to avoid it. However inspection has shown that these, either by inherent faults or careless application, are not universally successful.

3. Where other circumstances tend to

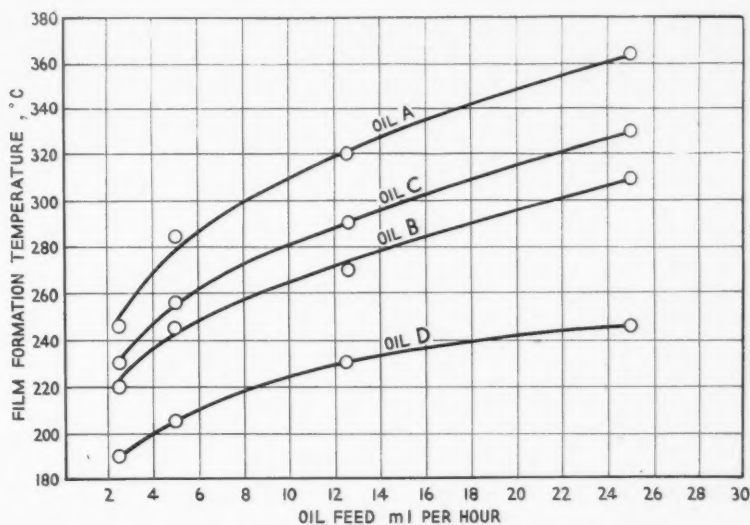


Fig. 2—Effect of rate of oil feed on film formation temperature

promote deposit formation, high rates of oil feed will aggravate matters. An additional reason is, therefore, provided to enhance the natural desire for economy in oil consumption.

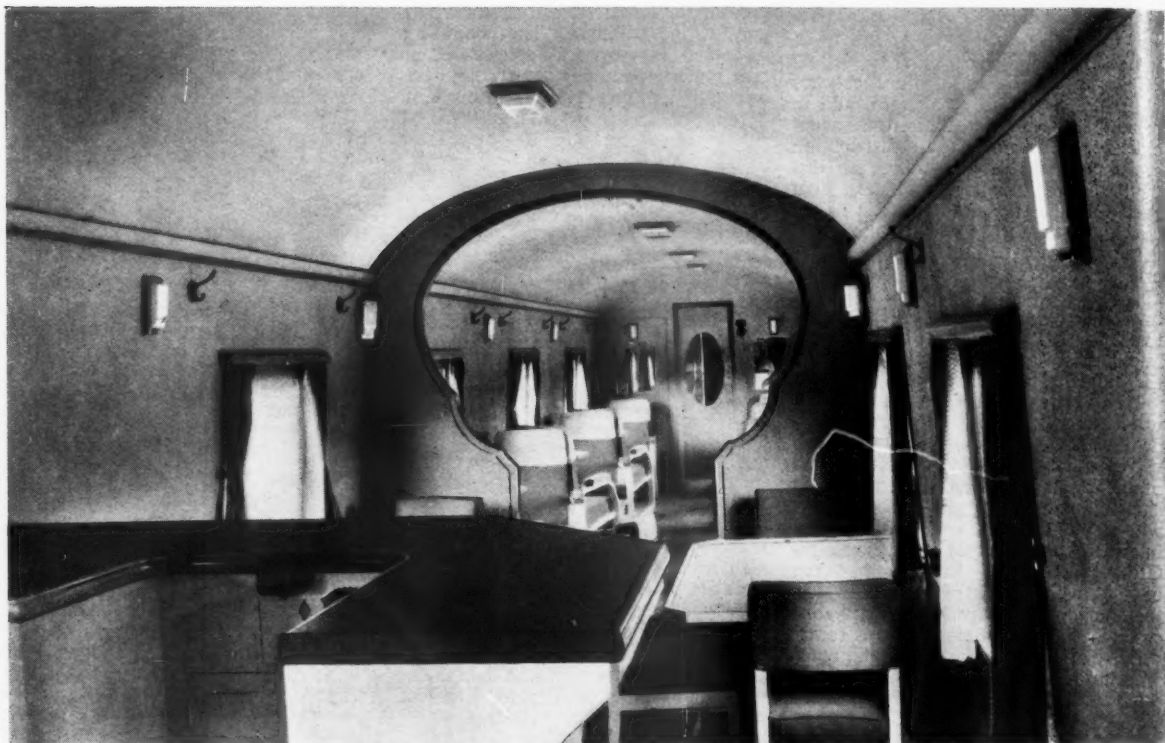
4. For effective steam cylinder lubrication with the minimum quantities of oil its volatility characteristics are of vital importance.

5. Conventional methods of measuring volatility are not suitable in this

case, and special apparatus is desirable. Results are of a practical nature, related to conditions in a steam cylinder, and show the fallacy of depending on viscosity figures alone.

The authors would like to express their thanks to the directors of the "Shell" Refining & Marketing Co. Ltd., and the N.V. de Bataafsche Petroleum Maatschappij for permission to publish this work.

Rebuilt Air-Conditioned Coaches for Malaya



Interior of buffet car showing the roof as originally fitted

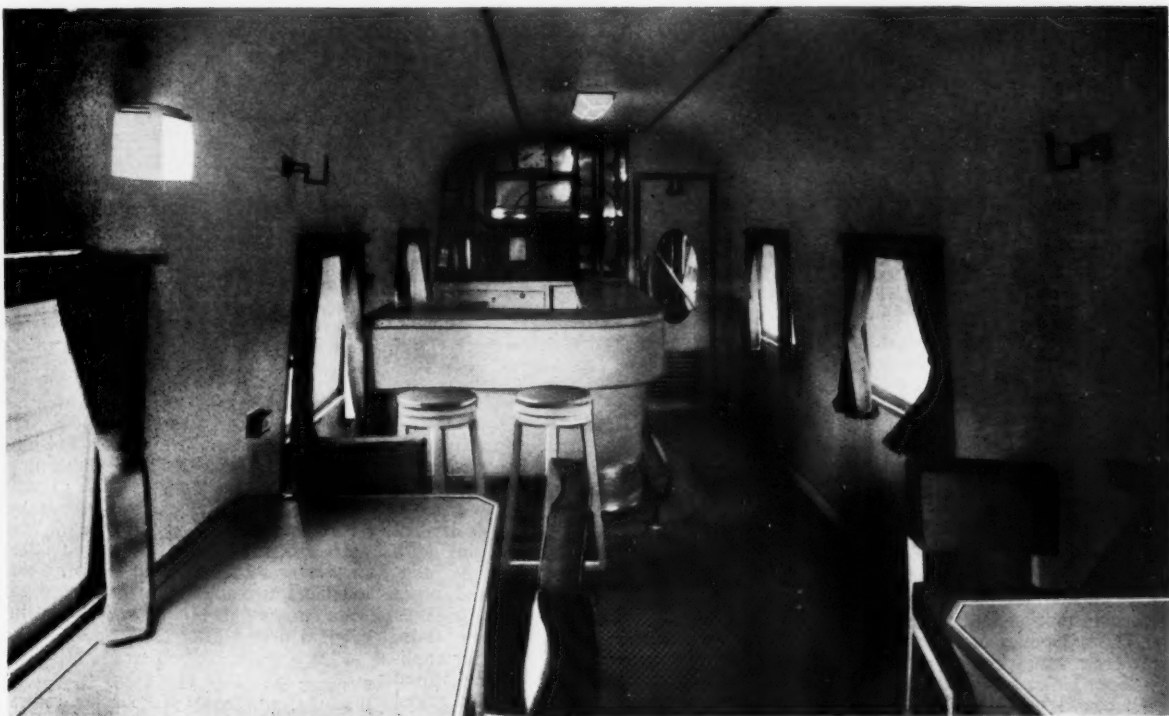


Interior of the same car showing the redesigned roof

Rebuilt Air-Conditioned Coaches for Malaya



Dining saloon of buffet car No. 962 before rebuilding



Rebuilt dining saloon of buffet car No. 936 fitted with a redesigned roof

Mr. O. V. Bulleid, Chief Mechanical Engineer, C.I.E.



Mr. Bulleid at his desk in the Chief Mechanical Engineer's Office at Inchicore, Dublin

The photographs, which show Locomotive Engineers and Chief Mechanical Engineers of the Great Southern & Western Railway and Great Southern Railways, Ireland, are as follow :—

Top row (left to right) : Messrs. W. H. Morton, Chief Mechanical Engineer, 1929-32 ; H. A. Ivatt, Locomotive Engineer, 1886-96 ; E. A. Watson, Chief Mechanical Engineer, 1913-21

Middle row : Mr. Robert Coey, Locomotive Superintendent, 1896-1911 ; Sir John Aspinall, Locomotive Engineer, 1882-86 ; Messrs. J. R. Bazin, Chief Mechanical Engineer, 1924-29 ; R. E. L. Maunsell, Locomotive Superintendent, 1911-13

On mantelshelf : Messrs. E. C. Bredin, Chief Mechanical Engineer, 1937-42 ; A. W. Harty, Chief Mechanical Engineer, 1932-37

Over a doorway to the right is a picture of Mr. Alexander McDonnell, Locomotive Engineer, 1864-82, which we were unable to include in the illustration

The photographs showing Mr. Ivatt and Mr. Maunsell are of special interest as the practice of these two locomotive engineers has strongly influenced Mr. Bulleid's designs

Twin Hopper Wagons for Turkey

(Concluded from page 381)

axleboxes, each spring being composed of nine plates approximately $4\frac{1}{4}$ in. \times $\frac{5}{8}$ in. thick and connected to the scroll irons by a shackle designed to allow a limited side oscillation of the wagon when in motion.

The axleboxes are arranged so that the brasses may be changed or inspected without either taking the wagon out of service or removing the axle and wheels. This is done by jacking up one end of the wagon to relieve the bearing springs of load; then, since the axlebox is

guided in a lateral direction by only one outer face, it may be tilted sufficiently to allow the bearing to be removed and inspected.

One wagon of each pair is braked on all four wheels by the Westinghouse system having an automatically controlled rate of application; the other wagon has only a through pipe to maintain continuity along the train. Provision has also been made for application of the brakes on individual wagons by hand, using the screwed shaft set against the handrail on the end platform. Before despatch, all parts are treated with red lead and grey

paint, the latter being the finishing colour, although the actual finishing is left until the wagons are finally assembled. The wagons of the same design, previously supplied nearly ten years ago, have proved to be well suited to the tasks they have to perform, and it is interesting to note that there has been no major modification to the original design after this period.

TURKISH RAILWAY FARES.—It is reported that the possibility of reducing railway fares in Turkey is being studied by a State Railways Commission in the face of increasing popularity of road travel.

RAILWAY NEWS SECTION

PERSONAL

Mr. W. Marshall Clark has relinquished the position of Interim Secretary-General, Central African Transport Conference, and has accepted an appointment to the senior administrative staff of the Anglo American Corporation of South Africa.

Mr. V. A. M. Robertson, who retired as Chief Civil Engineer, British Railways,

but at the outbreak of war he accompanied Indian Expeditionary Force "B" overseas with a commission in the Royal Engineers, serving with the Railway Corps in East Africa. He was mentioned twice in despatches, awarded the Military Cross, and promoted Major; and ultimately held the position of Chief Mechanical Engineer, East African Military Railways. On reversion from military duty he returned to India in 1921 as District Locomotive

Institution of Locomotive Engineers for 1946-47. Mr. Whalley has also relinquished the Chairmanship of Robert Stephenson & Hawthorns Limited, but is continuing as a Director of the company.

Sir Harry Methven, who has been appointed as Chairman of the Hotels Executive, had been a part-time Member of that Executive since 1948. He was born in Argyllshire in 1886 and was educated pri-



Mr. F. S. Whalley

Who has relinquished the Chairmanship of the Vulcan Foundry Limited



Sir Harry Methven

Appointed Chairman of the Hotels Executive

Southern Region, on March 31, has become a Partner in the firm of Sir William Halcrow & Partners, Consulting Engineers. The style of the firm remains unchanged.

Mr. Frederick Seymour Whalley, M.C., F.C.G.I., M.I.Mech.E., M.I.Loco.E., who, as recorded in our January 5 issue, has relinquished the Chairmanship of the Vulcan Foundry Limited, but is continuing as a Director of the company, was born on May 1, 1885, and was educated at the King's School, Canterbury, and the City & Guilds Central Technical College, London. After practical training in the locomotive works of the Vulcan Foundry Limited, and subsequently in the Running Department of the London & South Western Railway, Eastleigh, he was appointed in 1910 an Assistant Locomotive Superintendent, Indian State Railways, and was posted to the North Western Railway. In 1914 he was acting as Secretary, Locomotive & Carriage Superintendents' Committee, Indian Railway Conference Association,

Superintendent, N.W.R. In 1923 Mr. Whalley relinquished his appointment in India to become General Manager, Vulcan Foundry Limited, at Newton-le-Willows, of which he was appointed Managing Director in 1929, Vice-Chairman in 1941, and Chairman in 1946. He was elected President of the Manchester & District Engineering Employers' Association in 1931, and was re-elected for 1932 and 1933. He was elected President of the Locomotive Manufacturers' Association in 1936, and held that office until 1947. In 1940 Mr. Whalley was appointed Chairman of the Locomotive Manufacturers' Export Group, and, in 1942, Chairman of the newly-formed Railway Engineering Supply Industries Joint Committee. From 1941 to 1945 he was a Director of the North British Locomotive Co. Ltd., and in 1944 he was elected Chairman of Robert Stephenson & Hawthorns Limited. The Fellowship of the City & Guilds of London Institute was conferred on him in 1944. Mr. Whalley was President of the

vately in Scotland. At the age of 19 he went to the United States, where for two years he underwent intensive training with a large firm engaged in the food industry. After gaining further experience in England he joined Rowntree & Co. Ltd. and in due course became a Director of that firm, a position he held until 1950. Sir Harry Methven is Chairman of Fuller's Limited, and among other positions he holds are those of Chairman of W. S. Shuttleworth & Co. Ltd., and Whitefields Limited, and Director of the Dorchester Hotel Limited. In 1941 the Minister of Labour & National Service decided to form an undertaking for housing and feeding those transferred war workers who came under the Works Engagement Order, and when National Service Hostels Corporation Limited came into being, Sir Harry Methven was invited to become one of the original Directors; since the resignation of the late Lord Rushcliffe in 1946 he has been Chairman of the corporation. In 1948 he accepted an invitation by the



Mr. Percy Nunn

District Traffic Superintendent, Orpington, Southern Region, who has retired

Minister of Transport to become a Member of the Hotels Executive on a part-time basis. In addition to these activities, he is a Member of the Council of Eastbourne College and the Metropolitan Gardens Association. He received the honour of Knighthood in the King's Birthday Honours List, 1944.

Mr. Percy Nunn, O.B.E., who, as recorded in our March 9 issue, has retired from the position of District Traffic Superintendent, Orpington, Southern Region, joined the L.B.S.C.R. as a clerk in March, 1900. In 1910 he went to the Office of the Superintendent of the Line and on the amalgamation of the railways in 1923 was appointed Assistant Divisional Commercial Manager in the London West Division; he became Assistant Divisional Superintendent, London West, in 1930. He was appointed Western Divisional Superintendent, Exeter, in 1934, and two



Mr. A. Earle Edwards

Appointed District Traffic Superintendent, Orpington, Southern Region

years later became Divisional Superintendent, London East Division, Orpington. Mr. Nunn was awarded the O.B.E. in 1946. Earlier this year his post was redesignated District Traffic Superintendent, Orpington.

Mr. A. Earle Edwards, M.Inst.T., District Traffic Superintendent, Southampton, Southern Region, who, as recorded in our March 9 issue, has been appointed District Traffic Superintendent, Orpington, was born in 1901, and joined the S.E.C.R. in 1917. In 1928 he was selected as a cadet, to undertake a four-year course of training in all departments of the Southern Railway, which included four months with the Underground Railways group. He was appointed Assistant Western Divisional Superintendent at Exeter Central in 1931, and Senior Assistant Divisional Superintendent there in 1934, and was a Director of the Sutton Harbour Improvement Company at Plymouth from 1934 to 1940, and



Mr. P. A. White

Appointed District Traffic Superintendent, Woking, Southern Region

a member of the Exeter & District Traders' Panel. At the outbreak of war he was temporarily transferred to Southampton as Acting Assistant Divisional Superintendent, returning to Exeter in May, 1941. In September, 1943, Mr. Earle Edwards went to Deepdene Headquarters as Acting Assistant for Train Services to the Superintendent of Operation; in 1944 he was appointed Acting Assistant for Planning to the General Manager, and represented the Southern Railway on the Railway Companies' Association Commission for Post-War Planning. In October, 1944, he was transferred to Woking as Senior Assistant Divisional Superintendent (London West Division), and three years later was appointed Southern Divisional Superintendent, which post was redesignated District Traffic Superintendent, Southampton, earlier this year. From 1947 until his new appointment he also served as a Poole Harbour Commis-



Mr. S. H. Isaac

Appointed Assistant Marine Manager, British Railways, Southern Region



Mr. C. N. Morris

Appointed District Motive Power Superintendent, Cambridge, Eastern Region



The late Mr. E. V. Swallow

Assistant Chief Docks Manager, South Wales, Docks & Inland Waterways Executive, 1948-50

sioner. Mr. Earle Edwards was Chairman of the committee of the Metropolitan Graduate & Student Society of the Institute of Transport in 1930 and has been a member of the committee of the Metropolitan Section. He holds a number of London University (School of Economics) diplomas, and has visited many Continental countries to study the working conditions of railways and other forms of transport.

Mr. P. A. White, Assistant to Superintendent of Operation, Southern Region, who, as recorded in our March 9 issue, has been appointed District Traffic Superintendent, Woking, joined the S.E.C.R. in 1919 as a probationer, and entered the Office of the Superintendent of the Line in 1922. On the formation of the Southern Railway in 1923 he transferred to the Timetable Department in the then Chief Operating Superintendent's Office, and subsequently was appointed to the Passenger Rolling Stock Department in the same office. He was made Assistant to Divisional Superintendent, London East, in 1938, and became Acting Assistant Divisional Superintendent for that division in January, 1942. Mr. White was appointed Acting Assistant Divisional Superintendent, Western Division, in September, 1943, and Assistant Divisional Superintendent for the same Division in January, 1946. He became Assistant to Superintendent of Operation in 1947.

Mr. S. H. Isaac, Assistant to Docks & Marine Manager, Southern Region, who, as recorded in our March 9 issue, has been appointed Assistant Marine Manager, entered the service of the S.E.C.R. as a junior clerk in the London Divisional Traffic Superintendent's Office in 1914. He joined the Army in August, 1914, and served in France from 1915 until 1919. On demobilisation he rejoined the S.E.C.R., and at the formation of the Southern Railway was appointed to the staff of the London East Divisional Traffic Superintendent. In 1941 he was appointed to the London District Freight Superintendent's Office, and in 1945 became acting General Assistant to Docks & Marine Manager, Southampton, being attached to the Divisional Marine Manager, Dover, for duty in connection with troop services. On the reopening of the Channel Ports in October, 1945, he was appointed Assistant Divisional Marine Manager, Dover & Folkestone, and to the position of Divisional Marine Manager the following year. He was responsible to the Docks & Marine Manager for the restoration of the Cross Channel services between Dover, Calais, Ostend, Folkestone, and Boulogne. In 1947 he was appointed Assistant to Docks & Marine Manager, Southampton.

Mr. C. N. Morris, A.M.I.Loco.E., District Motive Power Superintendent, Norwich, Eastern Region, who, as recorded in our March 23 issue, has been appointed District Motive Power Superintendent, Cambridge, was educated at Doncaster Grammar School and Doncaster Technical College. He entered the service of the L.N.E.R. as a premium apprentice at Doncaster Locomotive Works in 1927 and after the usual period of training was appointed Supernumerary Running Shed Foreman at Stratford in 1931. Further appointments as Mechanical Chieftain and Running Shed Foreman at various depots followed, and in 1938 Mr. Morris was appointed as a Technical Assistant at Headquarters, Liverpool Street. He remained at Headquarters until 1942, when he became Assis-

tant District Locomotive Superintendent, Ardsley, and in 1943 he was appointed Locomotive Shedmaster, Grantham. In 1944 Mr. Morris moved to Gorton as Assistant to District Locomotive Superintendent, and was appointed Assistant to Locomotive Running Superintendent, Eastern Section, Shenfield, in 1945. In 1947 Mr. Morris was appointed District Locomotive Superintendent, Norwich.

We regret to record the death at the age of 67 of Mr. E. V. Swallow, J.P., who retired as Assistant Chief Docks Manager, South Wales, Docks & Inland Waterways Executive, last year. He joined the Alexandra (Newport & South Wales) Docks & Railway Company in 1903, and after obtaining wide experience in the Audit, Wharfinger's, Cargo and other outside Departments, became Staff Clerk in the General Manager's Office. At the amalgamation of 1922 Mr. Swallow joined the Chief Docks Manager's staff of the Great Western Railway at Cardiff as Chief Staff & Relief Clerk; he was transferred in 1923 to Swansea Docks as General Cargo Superintendent. In 1926 he was promoted to be Assistant Docks Manager there, and in 1929 became Dock Manager, Port Talbot. Mr. Swallow was appointed Dock Manager, Barry, in 1933, and in January, 1946, became Dock Manager, Swansea. In 1948 he was appointed Assistant Chief Docks Manager, South Wales, Docks & Inland Waterways Executive, from which position he retired in December, 1950.

The Hotels Executive has announced that Mr. W. H. Johnson, Secretary of the Executive, will retire on April 30, and will be succeeded by Mr. T. H. Baker, at present Assistant Secretary.

Mr. J. D. Lewis, a Partner in the firm of Fox & Mayo, Consulting Engineers, is in the near future paying a visit to Rio de Janeiro and Sao Paulo in Brazil, Montevideo in Uruguay, and Buenos Aires in the Argentine, and will leave this country by air on or about April 10. He will be returning to this country towards the end of May.

The late Mr. Francis Lydall, B.Sc., M.I.E.E., M.Inst.T., who was consultant to Messrs. Merz & McLellan and to that firm's Indian and South African interests, left "so far as can at present be ascertained" £50,905.

FUNERAL OF MR. H. G. SAYERS

The funeral of Mr. H. G. Sayers, Operating Superintendent, Scottish Region, who died on March 21, took place at St. Mark's Church, Portobello, Edinburgh, on March 24. In addition to the family mourners, those present included:—

Scottish Region: Messrs. T. F. Cameron, Chief Regional Officer; J. McCreadie, Assistant Operating Superintendent; W. Y. Sandeman, Civil Engineer; E. D. Trask, Motive Power Superintendent; T. H. Hollingsworth, Commercial Superintendent; G. S. Bellamy, Mechanical & Electrical Engineer; W. M. Ross (representing Regional Staff Officer); H. M. Hunter, Public Relations & Publicity Officer; J. Hastie, Treasurer; J. G. Dunlop, Accountant; E. C. Dewick, Estate & Rating Surveyor; C. R. Atkins, Stores Officer; Dr. T. Sharp (representing Medical Officer); Dr. A. D. Turnbull, Edinburgh; Mr. W. L. Turner, Road Motor Engineer; Captain H. J. Perry, Marine Superintendent; Messrs. F. J. Pepper, Acting Carriage & Wagon Engineer; I. R. Frazer, Assistant Civil Engineer; L. E. Marr, Assistant Commercial Superintendent; A. F. Moss, District Operating Superintendent, Glasgow; G. Crabtree, District Operating Superintendent, Edinburgh; H. F. Smart, District Operating Superintendent, Burntisland; R. W. Rose, District Commercial Superintendent, Edinburgh; R. Thompson, District Motive Power Superintendent, Edinburgh.

Also among those present were: Messrs. A. P. Hunter, Divisional Operating Superintendent, North Eastern Region, York; G. Mills, Divisional General Manager, Scottish Area, L.N.E.R. (retired); G. S. Begg, Passenger Manager, Scottish Area, L.N.E.R. (retired); E. A. Milne, Carriage & Wagon Engineer, Scottish Region (retired); J. Brewster, District Goods & Passenger Manager, Edinburgh, L.M.S.R. (retired); E. Lees, District Traffic Superintendent, and B. P. Blackburn, District Motive Power Superintendent, Carlisle, London Midland Region.

Those represented included: Messrs. V. M. Barrington-Ward, Member, Railway Executive; J. W. Watkins, Chief Regional Officer, London Midland Region; H. A. Short, Chief Regional Officer, North Eastern Region; E. W. Rostern, Operating Superintendent, Eastern & North Eastern Regions; E. W. Arkle, Commercial Superintendent, North Eastern Region; S. A. Fitch, Assistant Operating Superintendent, London Midland Region; E. J. Vipond, Assistant to Operating Superintendent, Eastern & North Eastern Regions; W. B. Shelton, Divisional Operating Superintendent, Crewe, L.M. Region.

Mr. C. J. R. Cobbett, who joined the G.W.R. in 1945 and since 1949 has been Acting Resident Engineer at Margam new

Presentation to Mr. O. H. Corble



Mr. O. H. Corble, who has retired as Chief Officer (Marine), Railway Executive, recently received from Mr. V. M. Barrington-Ward, Member of the Railway Executive, a farewell presentation of a carpentry cabinet

strip mill, has been appointed as an Assistant Engineer, East African Railways & Harbours.

Mr. A. E. Newton, Supervisor, Rail Tank Car Repair Section, Stocks & Traffic Department, Anglo-American Oil Co. Ltd., has retired.

TRANSPORT USERS CONSULTATIVE COMMITTEES

Following the appointments to the Transport Users Consultative Committees for the West Midland, North Eastern, North Western, and East Anglian Areas, recorded in our March 9 issue, the Minister of Transport has appointed the members for the East Midland Area, and a number of additional members to the West Midland and North Western Areas as follows:—

East Midland Area

Professor R. Peers (Chairman), Professor of Adult Education at the Nottingham University since 1922 and Deputy Vice-Chancellor since 1948.

Colonel R. Vaughan-Williams, Member of the Derbyshire County Branch, National Farmers' Union, Vice-Chairman of the headquarters Committee.

Mr. H. J. Wild, Member of the Buckingham County Executive of the National Farmers' Union.

Mr. J. S. Blackmore, Transport Manager, British Celanese Limited.

Councillor R. Arbon, Member of the Central Board of the Co-operative Union Limited, Nottingham City Councillor.

Mr. J. H. Criddle, Executive Assistant to the Traffic Manager, Pressed Steel Co. Ltd.

Mr. S. C. Bond, Transport Manager & General Shipping Manager of the Stanton Ironworks Co. Ltd.

Mr. W. E. Fowler, Transport & Shipping Manager, Appleby-Frodingham Steel Company.

Mr. J. Menheneott, Divisional Transport Officer, East Midlands Division, National Coal Board.

Mr. W. F. Knowles, Manager, Houlder Bros. & Co. Ltd.

Mr. G. E. Dearing, Secretary, Trades Union Congress, North Midland Regional Advisory Committee.

Mr. B. Sharpe, Branch & District Secretary of the Amalgamated Engineering Union.

Alderman C. F. White, Chairman of the Deroyshire County Council.

Alderman W. W. Williamson, Member of the Rutland County Council.

Councillor F. W. Holdich, Member of the Soke of Peterborough County Council.

Councillor J. King, Chairman of the Borough of Grimsby Transport Committee.

Mr. A. Hemstock, Additional member appointed by the Minister to represent the ordinary travelling public.

Sir H. Reginald Kerr, Divisional Manager, Midland Division, Road Haulage Executive, Birmingham.

Mr. W. B. Carter, District Commercial Superintendent, London Midland Region, Railway Executive, Nottingham/Derby.

One further additional member and one further member representative of local authorities are still to be appointed.

West Midland Area

The members whose names have not previously been announced are:—

Mr. A. Pittam, Vice-President of the Burton-on-Trent Co-operative Society.

Mr. F. D. Scott-Walker, Managing Director of C. W. Hayles Limited.

Mrs. A. Greenland, Additional member appointed by the Minister to represent the ordinary travelling public.

Sir H. Reginald Kerr, Divisional Manager, Midland Division, Road Haulage Executive, Birmingham.

Mr. R. P. Davis, District Goods Superintendent, Railway Executive, Birmingham.

One further member, representative of agriculture (in place of the late Mr. F. B. Bent), has still to be appointed.

North Western Area

The members of the North Western Area whose names have not previously been announced are:—

Mr. C. A. Park, Member of the Westmorland N.F.U. County Executive Committee.

Mr. D. Martin-Jenkins, Director, Ellerman Lines Limited.

Councillor J. R. Lindsay, Solicitor, Chairman of the Borough of Wallasey Transport Committee.

Mr. H. P. Aggleton, District Goods Superintendent, London Midland Region, Railway Executive, Manchester.

Mr. W. E. Macve, Divisional Manager, North Western Division, Road Haulage Executive, Manchester.

Mrs. E. Gowling, Additional member appointed by the Minister to represent the ordinary travelling public.

One further member, representative of labour, has still to be appointed.

The Fell Diesel-Mechanical Locomotive

Some details of its performance on test

A main-line diesel-mechanical locomotive for British Railways, incorporating the transmission system invented by Lt.-Colonel L. F. R. Fell, and under construction at Derby to the design of Mr. H. G. Ivatt, Chief Mechanical Engineer, London Midland Region, was described briefly in our July 1, 1949, issue. The locomotive, now completed and on trial, was the subject of a lecture given by Lt.-Colonel Fell on February 12 last to the Derby Centre of the Institution of Mechanical Engineers (Automobile Division).

Lt.-Colonel Fell stated that the locomotive had so far fulfilled expectations, and it is expected that eventually it would be a complete success. It is claimed that it will be the first main-line diesel-mechanical locomotive in the world. Other diesel-mechanical engines are strictly limited in their capabilities; even America—leading the world in diesel-electric locomotive development—is said to have no diesel-mechanical capable of the work for which the Fell is designed. A diesel-mechanical locomotive drives direct from the diesel unit to the wheels, eliminating the equipment used in the diesel-electric locomotive to generate electric power.

In his paper Lt.-Colonel Fell described the technical features of his invention, gave the results of the tests which so far had been made, and indicated what he thought the extensive use of diesel locomotives would mean to Britain. British Railways had already proved the ability of the main-line diesel locomotive to earn a quick return on the capital invested in its construction with the London Midland Region diesel locomotives, which, in slightly under two years, had each completed 250,000 miles. The performance of these two units (Nos. 10000 and 10001), should help to convince the Railway Executive that an extension of the use of diesel locomotives here was long overdue.

Drawback of Electric Transmission

Probably the most important disadvantage of electric transmission was that its use tended to produce a locomotive with a somewhat low power-weight ratio—particularly compared with a locomotive drawing power from a live rail or overhead wire—because on the diesel-electric locomotive the weight of the generating plant had to be added to the weight of the traction equipment. With the Fell system it was aimed to prove that a satisfactory diesel-mechanical locomotive could be built with a power-weight ratio comparable with that of the dependent electric locomotive.

As the cost of locomotives depended on

their weight, improving the power-weight ratio meant more power for the money. Moreover, electrical conversion involved a loss of transmission power of about 20 per cent., against only about 6 per cent. with the diesel-mechanical. The Fell diesel could develop 2,400 h.p.—at present restricted to 2,040. Lt.-Colonel Fell quoted the following comparative performance figures of the Fell locomotive and diesel-electric No. 10000:—

	L.M.R. No. 10,000 locomotive	Fell 2,040
H.p. ...	1,600	2,040
Max. speed, m.p.h. ...	90	90
H.p. available hauling train at 50 m.p.h. up in 100 ...	780	1,400

Ease of Manufacture

Further advantages of the diesel-mechanical system were that in its construction little copper was used, and it had been found that with the exception of the diesel engines themselves, almost every other part of the locomotive could be manufactured by the component steam locomotive builder. In discussing the technicalities of the diesel-mechanical transmission and the difficulties which had to be overcome, Lt.-Colonel Fell said that the question which would doubtless arise was, "Does it work?" During the fortnight in which it had been on the road the following facts regarding it had been established.

The locomotive started without the slightest shock; the initial movement was probably more gradual than that obtained from the steam locomotive. By suitable operation of the controls it could carry out any shunting operation required. No damage could result from the misuse of the high power-weight ratio; the acceleration was exceptionally good. The locomotive, running at any rate up to 50 m.p.h.—the maximum so far attempted—either hauling a train or light engine, was completely steady and showed no tendency to nose or roll.

"To sum up," said Lt.-Colonel Fell, "so far as control is concerned at any rate for the time being, there is nothing to criticise. Its reliability and durability have yet to be proved. In any case we feel justified in saying that a new type of diesel has been born."

It was now widely accepted that British railways should have been electrified long ago, but today electrification was not a practical proposition. It seemed certain that there was no prospect of any considerable further extension of railway electrification for at least 20 years, because of lack of generating plant if for no other reason.

The annual coal consumption of the loco-

motives owned by British Railways was just short of 14,000,000 tons. The coal had to be of the best quality and was consumed at an overall efficiency of 6 per cent. The cost of supplying water to British railway locomotives was £3,500,000 a year, and the total bill for water and the effects of its use was £8,000,000 a year.

The Function of Public Relations

Mr. Dodson-Wells on the part played by a Public Relations Department

In the course of a paper entitled "Public Relations—Bulwark of Freedom," which was read before the Institute of Journalists (London District) on April 2, Mr. George Dodson-Wells, Chief Public Relations Officer, London Transport Executive, said the first and most important point to understand in an appreciation of public relations was that it was the ethos of an organisation, association or other group of people, the disposition and characteristic spirit within an industry and the link with those outside. A public relations department was really a contradiction in terms, for a section of an organisation, separated, in its own compartment, from the rest of the activity of which it was in fact part, would be in no position to fulfil the task. Public relations was the concern of the whole undertaking and the whole undertaking was the concern of public relations.

Mr. Dodson-Wells thought he should perhaps say at once that some principals in the advertising profession were of the opinion that public relations should be considered as a function of advertising. Indeed, a good deal of heavy weather had been made—by both sides—over which should be part of which, but he thought that the whole matter was largely one of nomenclature. Most leading advertising agencies, themselves imbued with the spirit of public relations and directed by men of high principles, were equipped to undertake the practical work of public relations on behalf of their clients. On the other hand, the public relations organisation of an industry, commercial firm or other undertaking must be equipped to handle advertising.

Various attempts had been made to define public relations. One ran as follows:—"The practice of public relations is that function of management which is responsible for presenting and, where necessary, interpreting to the public all the relevant aspects of the policy of an organisation and the product of service which it provides, and for interpreting to the organisation the attitude of the public to its policy and its product of service."

This definition, while excellent in itself, seemed to contain too many words. He submitted that the functions of public relations could be described in two—"establishing confidence." Even the number of syllables might be reduced if one made it "building trust." The public relations officer's duty, be he servant of a public corporation or of private industry, was, on the one hand, to convey to his organisation a trustworthy picture of the public's attitude, and, on the other, to ensure that every contact made on behalf of his organisation with the public—whether through advertisements, the spoken word, the written letter, the picture or, not least, the product or service for which the organisation was responsible—that every contact contributed to public confidence in the undertaking.

Westinghouse Brake & Signal Co. Ltd.

Progress in the field of new developments

The ordinary general meeting of the Westinghouse Brake & Signal Co. Ltd. was held at 83, York Way, London, N.1, on March 22, Captain A. R. S. Nutting, Chairman of the company, presiding.

The Chairman, in his statement circulated with the report and accounts for the year ended September 30, 1950, said that they had added £20,000 during the year to the capital reserve for replacement of equipment and plant, making the reserve £95,000. The board felt that a reserve for contingencies of £100,000 was necessary, and in consequence £40,000 had been added thereto this year, which would maintain this reserve at its previous level of £100,000. The provision for taxation, including £103,000 for income tax, 1950-51, was £595,179.

The Australian companies continued to be fully occupied and had produced most satisfactory results. They had full order books and their prospects were exceedingly bright. The Indian subsidiary had made an excellent recovery during 1950, after experiencing for some years the ill effects of the period of political changes. The English subsidiaries had made their contributions to the profits of the group. The Westinghouse Garrard Ticket Machines Limited had incurred a substantial loss, which was entirely due to heavy expenditure on development and the production of prototypes of certain new types of machines. This position was anticipated from the commencement.

The trading profit of the parent company was approximately £15,000 below the 1949 figure, but the subsidiaries had improved their trading profit by approximately £5,000. While 1950 was an improvement on 1948, it was about £10,000 below the 1949 figure. The provision for depreciation, £153,575, was exclusive of the £40,000 special depreciation added. Taxation took £226,960, or about 47 per cent., away from the trading profits and gross income from trade investments and securities of £482,881.

The net profit of their own company for the period, at £167,969, compared with the previous figure of £171,932. This year £16,915, after provision for taxation, was brought in as income relating to previous years and provisions no longer required. The board had decided to recommend the payment of a dividend for the period of 14 per cent., less income tax, which absorbed £86,423. The result was that of the balance available of £284,535, a sum of £186,423 had been appropriated, leaving a carry forward to next year of £98,112, which was approximately the same amount as was brought forward from the 1949 period.

General Review

Their order book remained most satisfactory and the volume of business for each of their products had increased. The home railways had given very substantial orders for brake and heating apparatus. With regard to signalling, however, these railways did not appear to be considering any new projects.

The company continued to receive substantial orders for brake equipment for diesel-electric and electric locomotives destined for Australia, New Zealand, Spain, and South Africa, in addition to brake apparatus for wagons. Business in brake equipment for road vehicles was increasing rapidly.

The rectifier business still formed a healthy proportion of their sales and the value of the orders received during the financial year just closed was a record. Prospects for the ensuing year were good. They were continuing to take their share of the rearmament programme for all the services and at the same time kept up production for the export market. They had now in operation what had been described as the most modern and efficient plating shop in the country.

Their export trade was increasing, and during the period under review they exported, directly or indirectly, nearly 40 per cent. of their total production. The lack of sterling in many countries still obtained.

A Difficult Period

The preparation of signalling schemes, the intricacies of meeting the requirements of safety and individual demands, the time and care required in production, the hazardous work of installation, and the lack of large quantities of any particular item, tended to make this side of their business difficult and precarious for the present. The increased costs of materials and labour, particularly of the types and kinds involved, added to the difficulty of securing any adequate return for the services rendered.

They had made progress in the field of new developments, despite the prevailing conditions which tended to force attention on day-to-day production, and their development department had produced a new illuminated diagram, involving new ideas, for use in signal cabins. Train announcers and improved shunt signals had also been demonstrated.

As to their future prospects, if one considered the size and volume of the order book, there was every justification in being optimistic; but when one contemplated the international situation and the consequential effects in taxation, controls, restrictions, shortages of materials and labour, this optimism was tempered to a degree which was disturbing.

The report and accounts were adopted.

NEWALL GROUP SALES LIMITED.—The Newall Engineering Co. Ltd. informs us that it has no connection with the firm of Herbert Lindner Limited or its manufactures.

"BRITISH STANDARDS" EXHIBITION.—This year the British Standards movement attains its golden jubilee, and as a part of the celebrations an exhibition supported by practically the whole range of British industry will be held at the Science Museum, South Kensington, during the two weeks beginning June 18. The benefits derived from standardisation and simplification will be graphically presented, and each industry will show how standards have simplified production, reduced costs, and maintained quality, and how in turn they have benefited the users of products. The exhibition will also show how research at one end of the production chain and quality control at the other are linked and helped by standardisation. The exhibition will be opened by the President of the Board of Trade. Admission will be free, and opening hours will be from 10 a.m. to 7 p.m. daily, except Sunday.

Parliamentary Notes

Railway Freight Charges

Mr. Alfred Barnes (Minister of Transport) made a statement on railway freight charges, parcel rates, and dock and canal charges to the House of Commons on March 22 before adjournment for the Easter recess. As a result of the recent increase in railway wages and other substantial increases in their costs, he said, the B.T.C. estimated that at current levels of charges there would be a deficit on their net revenue for 1951 of £25 million, in addition to the accumulated deficit in revenue account amounting at the end of 1950 to £40 million.

He explained his rights and duties in this matter as authorised by the Transport Act, 1947, and continued: "In the light of its financial situation the Commission has asked me to exercise my powers with a view to an immediate increase of 10 per cent. in railway freight charges, parcel rates, and dock and canal charges. The total yield of this increase in a full year is estimated at £20 million." He had consulted the permanent members of the Transport Tribunal and expected to receive their advice soon. This procedure was intended as an immediate relief to the Commission and to prevent an undue enlargement of the deficit during the period required for the charges schemes. The date of operation of the passenger schemes which would be submitted shortly would be determined by the Tribunal. The freight scheme would follow.

Captain Peter Thorneycroft (Monmouth—C.) asked for an opportunity for debate, in view of the gravity of Mr. Barnes' statement. He also asked if the Transport Tribunal intended to follow precedent and have a full public inquiry, in which the views of members of the public and of the traders involved could be fully canvassed.

Mr. Barnes replied "Until the Tribunal expresses its views to me I am unable to state definitely what its attitude would be. In my submission to the Tribunal I emphasised the urgency of dealing with this proposal and the request of the B.T.C. for a 10 per cent. increase. I urged the importance of the time factor in this matter, which is essential, as the Commission is now in a position to submit its charges schemes to the Tribunal, both for passenger and freight charges."

It appeared to him that it was desirable that the losses of the B.T.C., which recent increases in prices and wages made inevitable, should not proceed at an unduly rapid rate. He had further indicated that the Tribunal should take into consideration the fact that about this time last year, when the 15 per cent. increase was imposed on freight charges, traders and other bodies concerned submitted their views in full. There had been no substantial change in the circumstances. The freight charges schemes would follow on. What advice the Transport Tribunal would tender on that, he could not at the moment state, but he expected its advice very quickly.

Major R. E. Manningham-Buller (South Northampton—C.) asked if the Minister could elucidate the position as to passenger fares and whether he intended to make a corresponding immediate increase of 10 per cent. in passenger fares?

Charges Schemes

Mr. Barnes: No. I have indicated that the B.T.C. is now in a position to proceed with the whole of its charges schemes as visualised. The first ones will deal with passenger fares, and will be followed by the freight schemes. Therefore, I am not

in any way dealing with passenger fares in this statement. As a matter of fact, in this statement, I am not giving a decision on a 10 per cent. increase in railway freights; I am awaiting the advice of the Transport Tribunal on that. All I am giving, with regard to the charges schemes, is the information that they are about to be submitted to the Transport Tribunal and that, from then on, that machinery will function.

Major C. C. Poole (Perry Bar, Birmingham—Lab.) asked the Minister how much of the deficit of £25 million arose from increased railway wages; also whether the time had come when he ought properly to tackle the question of the number of "C" licence vehicles.

Mr. Barnes said that the problem of "C" licence vehicles had no bearing on these figures. Some £19 million out of the £25 million deficit estimated for this year represented wages increases, most of it reflecting the recent railway wage increases to British Railways staff, but not entirely; increases to London Transport and others came into the figure.

Viscount Hinchinbrooke (South Dorset—C.) asked to what extent a general subsidy to cover the Commission's deficit had been considered, and if it had been rejected.

Mr. Barnes said that from time to time, all matters of that character had been considered by the Government, and referred to the F.B.I. suggestion of a strategic subsidy. They did not look to a subsidy to solve this problem, and saw no reason why, when the full charges schemes came into operation, transport as a whole should not meet its expenses. As to general pressure for increased efficiency and economy, that was taking place, and from time to time satisfactory progress was made.

Pressure on Transport Tribunal

Captain Peter Thorneycroft said he understood the Minister to say that he had made strong representations to the Transport Tribunal that, as an enquiry had been held before the 16½ per cent. rate increase, it would not be necessary on this occasion. He asked Mr. Barnes to consider the propriety of pressing the Transport Tribunal in that way not to hear evidence, to withdraw the pressure which he had put upon it, and to allow it in accordance with precedents to hear the evidence at a public enquiry.

Mr. Barnes replied that he did not presume to give the Tribunal advice. He had asked the Tribunal to advise him, and had put no pressure on it; if he did so, he would not expect the Tribunal to accept it.

Many members rose to put further questions to the Minister, but the Deputy Speaker said that Members had had ample opportunity for interrogation.

Major J. A. Boyd-Carpenter (Kingston-upon-Thames—C.) on a point of order, asked whether it would be permissible now to ask the Minister for an assurance that he would take none of the actions which he foreshadowed under Section 82 of the Transport Act until the House had had an opportunity to seek assurances from him.

The Deputy Speaker replied that quite clearly that was not a point of order.

Transport in the Highlands and Islands

Problems of transport in the Scottish Highlands and Islands were raised by Lord Malcolm Douglas-Hamilton (Inverness-shire—C.) on the motion for the adjournment of the House of Commons on March 22.

He drew attention to the adverse effects in the Highlands of last year's increase in railway freight charges, and pleaded for special consideration for that region in

the matter of railway charges generally. They could offer certain winter sports in Scotland, but as passenger rates were, it was little more expensive to go to Switzerland than to the Cairngorms. They wanted to attract all the tourists they could for the good of the country; the best thing the Minister could do in this case was to halve fares during the winter, spring, and autumn.

Major Duncan McCallum (Argyll—C.) asked if the Minister could recommend the British Transport Commission to consider special concessions for the Highlands and Islands in railway and whatever transport means it controlled.

Mr. Alfred Barnes said the B.T.C. expected to have its charges scheme ready for the Transport Tribunal by August. It was under that kind of procedure that these problems must be fought out between the Commission and the traders and users of the services. The organisations that represented them would have ample opportunity of submitting their case to the Tribunal. So far as he knew, the Highlands were equipped with various bodies to put their case clearly before the Tribunal.

Major McCallum asked if a body like the Highlands & Islands Advisory Panel could put its views to the Tribunal.

Mr. Barnes said that the Tribunal itself decided its procedure and whom it admitted to give evidence. The Minister himself could never be in a position to judge those problems as adequately as under that procedure.

In various ways, continued Mr. Barnes, the Ministry of Transport had given very substantial financial assistance to transport in the Highlands, more so than to any other part of the United Kingdom. Until this year, when it was liquidated, the Railway Freight Rebate Fund gave considerable assistance to transport.

Questions in Parliament

Ministries of Civil Aviation and Transport

Lt.-Colonel Heathcote Amory (Tiverton—C.) on March 19 asked the Prime Minister whether, in the interests of economy, he would consider merging the Ministries of Civil Aviation and Transport.

Mr. Attlee: No substantial economy could be achieved.

Lt.-Colonel Amory: Now that the greater part of the industries which are supervised are nationalised, and have their own boards, the effect of these big Departments on these industries, at the top, must result in very heavy overhead expenses. Has the Prime Minister any other proposal for reducing the burden of overheads?

Mr. Attlee: I quite agree that this is a matter which, at first sight, is attractive. I thought of discussing it with the Minister of Transport, but after careful examination I could not see that we could get any substantial advantage from it.

Train and Steamer Service Cuts

Sir Walter Smiles (North Down—C.) on March 5 asked the Minister of Transport if he was aware of the inequitable distribution of the emergency cuts in rail and steamer traffic.

Mr. Alfred Barnes: The Railway Executive has sought to cause the least inconvenience by cutting the most lightly-loaded services where the most effective savings in coal could be obtained.

Sir Walter Smiles: One Belfast-Heysham steamer has been cut, whereas the other British Railways cross-Channel services have not.

Mr. Barnes: Some of the ships are oil burning. In this case, the cut represented a direct saving in coal consumption. It was not a very heavily loaded service, and it was temporarily suspended.

Professor S. Savory (South Antrim—C.): Cutting the Heysham service seriously affects the export of raw materials to Northern Ireland for the shipbuilding yards and aircraft factory for defence purposes.

Mr. Barnes: I do not think that cargo will be inconvenienced to the same extent as passenger services.

Cyprus Railway

Mr. J. N. Browne (Govan, Glasgow—C.) on February 28 asked the Secretary of State for the Colonies what were the Government plans for the future of the Cyprus Railway.

Mr. James Griffiths: The Cyprus Government has been advised that the railway could not be operated safely after the end of this year without costly renewals. As alternative road transport could be provided more cheaply, the Governor has invited public comments on the proposal that the railway be closed; these are now being examined.

Mr. Browne: Is the Minister aware that this railway is of great importance to the mining industry, as well as of great strategic importance?

Mr. Griffiths: No. I understand that the railway loses about £4,000 per annum and that the cost of renewal is £400,000, so that there is no chance of making it an economic proposition.

Institution of Railway Signal Engineers

At a meeting of the Institution of Railway Signal Engineers in London, on February 14, Mr. L. E. Thompson read a paper on the application of rectifiers to railway signalling work. Mr. F. Horler, President, was in the chair.

The paper dealt with the history and construction of different types of rectifier, together with basic information on various applications, which included a considerable variety of methods of connecting to single and three-phase supplies, with particulars of ratings, losses, thermal characteristics, and so on, followed by an account of specific uses of rectifiers in signalling and telecommunications and instrument work.

Mr. T. Austin, opening the discussion, said that signal engineers were greatly indebted for a paper on a subject not touched on before the Institution since that read by Major L. H. Peter in 1935. Its details would be of value to circuit and apparatus designers in the future. It would be interesting to know whether there were any limiting factors in the life of rectifiers, having regard to varying atmospheric conditions, whether there was a known definite life, and what steps were taken to ensure that the plates which went to form a rectifier were up to standard.

Mr. G. G. F. Halliwell said that the question of bringing rectifiers in for overhaul after some years in use was important and they needed an assurance that some method existed by which they could know that one could continue working for a number of years more without replacement. He was interested also in the question of whether the light value of a lamp was affected by using a rectifier in the proving circuit as described in the paper. He thought it might be possible to use a lighter type of relay. He also mentioned

the use of a rectifier to accelerate the drop away of a d.c. relay in relay interlocking installations.

Mr. J. E. Mott referred to reliability as it affected vital signalling circuits. This was a different matter from such services as battery charging and so on. Had the arrangements shown in the paper been actually used in regular practice? If part of a rectifier went down, could it make up again, or would it stay wrong?

Mr. J. E. Candler gave his experiences in the ageing of rectifiers and enquired whether this aspect of their characteristics had been improved of recent years? He also referred to the adverse effect of mercury coming in contact with rectifying apparatus.

Mr. V. S. King referred to the economics involved in making rectifiers suitable for use in special locations, such as tunnels, and Mr. L. W. H. Lowther spoke of the effects on rectifiers of exposure to high temperatures, and of transport through the tropics.

Mr. L. R. Insley referred to the question of the action of mercury, which was not so rare as appeared to be thought, and mentioned that they had quite a lot of mercury in their rail-contact treadles.

Mr. B. Reynolds considered it would be of help to overseas signal engineers to know just to what extent equipment could be affected by different temperatures, and Mr. W. Owen mentioned that certain rectifiers had in his experience been in regular service since 1924.

The President moved a vote of thanks to Mr. Thompson for his paper.

COVENTRY GAUGE & TOOL COMPANY.—After allowing £65,000 for taxes, against £76,000, the Coventry Gauge & Tool Co. Ltd. made a net profit of £61,589 for the year ended August 31, 1950, which compares with £69,587 for the previous twelve months. This year, the dividend is being maintained at 15 per cent., free of tax, and an amount of £255,844 is being carried forward as compared with £221,567 a year ago.

OVERSEAS BUYING DELEGATIONS FOR THE B.I.F.—Special parties of overseas buyers are being organised to visit the British Industries Fair, which is to be held simultaneously at Earls Court and Olympia in London, and at Castle Bromwich, Birmingham, from April 30 to May 11. Preliminary details have already been sent to the B.I.F. headquarters in London of delegations from Hong Kong and Palestine, and notifications have also been received of proposed parties from Brazil, Norway, and Switzerland.

SUPPLIES OF NON-FERROUS METALS.—Monthly announcements of allocations of copper, lead, and zinc, which have been made to industry by the Ministry of Supply since the beginning of this year, are to be suspended. Announcements will in future be made only when there is a significant change in the supply position or when a major change in distribution methods or the basis of allocations is contemplated. No such change is planned for April in the case of copper and zinc. Although the lead supply position has become more difficult, because of shipping problems, there will be no change in the basic allocation of lead to consumers, who may purchase a quantity not exceeding 90 per cent. of their average monthly consumption in 1950 from the Directorate of Non-Ferrous Metals at Rugby. This 90 per cent. allocation will represent the limit of deliveries of imported virgin lead.

Contracts & Tenders

An order for 22 third class coaches has recently been placed with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. by the Egyptian Government. The order is for 11 vehicles with buffet compartments, and 11 with brake compartments, and for two spare bogies.

The Canadian National Railways have recently placed an order with the Canadian Car & Foundry Co. Ltd. for 100 30-ton flat cars and 1,000 40-ton automobile cars. The order is valued at nearly \$8,000,000.

The Argentine Ministry of Transport has authorised the purchase of rolling stock and railway spares from Holland to the value of over ps. 395,000,000, and it is reported that most of the material will be supplied by Werkspoor N.V., Amsterdam. The rolling stock in question is as follows. 100 first class coaches, 185 second class coaches, 15 air-conditioned dining-cars, 5 air-conditioned bar coaches, 50 air-conditioned semi-pullman coaches, 55 luggage vans, 5 postal wagons, 10 1,500-b.h.p. diesel-electric locomotives, and 15 diesel-electric five-coach trains, all for broad gauge services. In addition, the following items are listed for medium gauge services: 25 first class coaches, 30 second class coaches, 8 dining cars, 15 sleeping cars, 10 luggage vans, 5 postal wagons, 5 five-coach diesel-electric trains, and 15 1,000-b.h.p. diesel-electric locomotives.

John I. Thornycroft & Co. Ltd. has received a contract from the South African Railways through Robertson & Moss Limited, its local distributors, for heavy duty three-axle chassis to the value of over £500,000. The vehicles will be required to haul a trailer over rough country roads with long average gradients of 1 in 9 and maximum gradients of 1 in 5.

On April 3, the Metropolitan-Cammell Carriage & Wagon Co. Ltd. despatched from its Midland Works, Common Lane, Washwood Heath, the first of an order for 56 motor coaches for the Indian Government Railways. These vehicles are 68 ft. long by 12 ft. wide, and will be used on the electrified services of the Great Indian Peninsula and Bombay, Baroda & Central India Railways. The weight of the coach in running order is 51½ tons, and the light-weight construction which has been used has resulted in a saving of 18 tons over similar coaches supplied before the war. The vehicles are being conveyed by road to Birkenhead on specially constructed road bogies.

In our December 1, 1950, issue reference was made to a contract placed with Maschinenfabrik Augsburg Nürnberg, A.G., Nuremberg, Germany, by the Government of India. The firms who will build the rolling stock concerned are as follows:—

Maschinenfabrik Augsburg Nürnberg, A.G.: 40 coaches; 75 sets of coach bogies.

Siegener Eisenbahnbedarf, A.G.: 500 covered goods wagons.

H. Fuchs Waggonfabrik, A.G.: 40 coaches.

Waggonfabrik Jos. Rathgeber, A.G.: 35 coaches.

Niedersächsische Waggonfabrik Jos. Graff-Elze, G.m.b.H.: 35 coaches.

Waggonfabrik Talbot, A.G.: 30 coaches;

50 hopper wagons.

Düsseldorfer Waggonfabrik, A.G.: 250 covered goods wagons.

Wegmann & Company: 250 covered goods wagons.

Vereinigte Westdeutsche Waggonfabriken, A.G.: 45 coaches; 125 sets of coach bogies;

50 underframes and one set of bogies.

Gebrüder Crede & Company: 25 coaches.

Maschinenfabrik Esslingen, A.G.: 50 sets of coach bogies.

Notes and News

Draughtsmen Required.—Senior and junior draughtsmen, with experience in the design of diesel-electric locomotives, are required by a manufacturing concern in the Midlands. See Official Notices on page 395.

Traffic Learners Required.—Traffic learners, between 20 and 23 years of age, are wanted for South American railways. Some knowledge of Spanish and railway working preferred. See Official Notices on page 395.

Government of Pakistan.—Applications are invited for three posts of divisional district mechanical engineer in the motive power and mechanical engineering departments of the Pakistan Railway Service of Engineers. See Official Notices on page 395.

Traffic Instructor Required.—Applications are invited by the Crown Agents for the Colonies for the post of traffic inspector, preferably under 35 years of age, required by the Gold Coast Government Railway, for one tour of 18 to 24 months in the first instance. See Official Notices on page 395.

Diesel Engine Users Association.—The annual luncheon of the Diesel Engine Users Association will be held at the Connaught Rooms, Great Queen Street, London, W.C.2, on Thursday, April 19, at 12.30 for 1 p.m. The principal guest will be Mr. T. A. Crowe, Chief Engineer, John Brown & Co. Ltd.

Western Region Train Cuts Restored.—The Western Region of British Railways announces that the train services withdrawn on account of the coal crisis, which were restored over the Easter holiday period, will continue to run. In addition, as from April 2, nearly 200 more branch-line and local services were reinstated. These include 28 trains in the London area and 40 in the Bristol area as well as 50 in the Birmingham district.

R.E. Locomotive Naming in Egypt.—On January 23, Major-General A. D. Campbell, Engineer in Chief from the War Office, visited the 10th Railway Squadron, R.E., at Adabiya, near Suez, to name W.D. Locomotive, No. 70387, *Cpl. W. J. Lendrim, V.C., Royal Engineers*. This locomotive is one of five ex-L.M.S. Class "8F" 2-8-0 heavy freight locomotives now being operated by 10 Squadron over the Adabiya to Ataka Military Railway and in hauling W.D. traffic through the Canal Zone. The policy is to name these loco-

motives after members of the Corps awarded the Victoria Cross. Major-General Campbell was accompanied by the Chief Engineer, M.E.L.F., Major-General William Broomhall, Senior Officers of the R.E. Transportation Service, Middle East, and Major G. C. L. Alexander, O.C. of the Squadron. The 10th Railway Squadron, R.E., is the senior Royal Engineers unit in the Middle East.

Institution of Locomotive Engineers.—At a meeting of the Institution of Locomotive Engineers to be held at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. on April 18, Mr. G. Jendrassik will read a paper entitled "Practice and Trend in Development of Diesel Engines with Particular Reference to Traction."

Wolf Electric Tools at the B.I.F.—The complete range of tools to be shown by Wolf Electric Tools Limited this year at Castle Bromwich will include several items of equipment new to the B.I.F. These will be the Model R.S.10 portable electric saw and H.D.1 building and maintenance hammer kits. Four of the machines to be displayed on this stand have been chosen by the Council of Industrial Design as Festival of Britain exhibits.

Closing of Stations: London Midland Region.—The London Midland Region of British Railways announces that the following stations were permanently closed for all passenger, parcels, and passenger train merchandise as from April 2: Rearsby, between Syston and Melton Mowbray; Collins Green, between Kenyon Junction and Liverpool; Mickle Trafford, between Chester and Helsby; Higher Buxton, between Ashbourne and Stockport; Linacre Road, between Marsh Lane and Aintree; Ford, between Marsh Lane and Aintree; and Asfordby, between Syston and Melton Mowbray.

The Transportation Club.—The fourth annual meeting of the Transportation Club was held at 44, Wilton Crescent, S.W.1, on Friday, March 30. Mr. Gilbert S. Szlumper, the Chairman, presided, and in the course of his remarks referred to the steps which had been taken in an endeavour to improve the financial position of the club. On the recommendations of the Executive Committee the annual subscription had been reduced to eight guineas. Provision had been made whereby the wives of members could make use of part of the club premises during the evenings, and a corporate subscription covering the regular use of the club by nominated

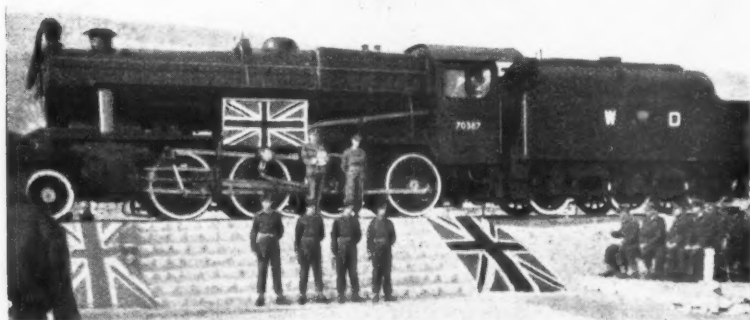
executives of organisations had been introduced. It had also been decided to issue temporary club membership cards to provincial or overseas officials or guests. Increasing use was being made of the club facilities for private parties, and three very successful club dinners had been held. The total membership of the Club at December 31 was 462. At an extraordinary general meeting held after the annual general meeting the Chairman said that 44 new members had been elected since the beginning of the year and the first two months of the club's trading showed a reasonable profit.

G.W.R. (London) Dramatic Society.—Following the success of its autumn production of "Pride and Prejudice" the Great Western Railway (London) Dramatic Society is presenting "The Shop at Sly Corner" at the Park Theatre, Hanwell, today, April 6, and on April 7. The cast includes Alexander Griffiths, who takes the part of Descius Heiss, curio shopkeeper of Sly Corner, with Margaret Dee as Margaret, his daughter. The character of Mathilde Heiss will be played by Dorothy Lees, Archie Fellowes by Peter K. Blay, and C.I.D. Inspector John Elliot by Oscar Whitaker. The production will be under the direction of Arthur E. Clapp.

Automatic Luggage Lockers.—British Railways are to install 664 automatic luggage lockers at London and provincial railway stations. This follows the experimental installation at Euston some 18 months ago of 40 lockers which have proved very popular. The lockers, which were described and illustrated in our issue of November 18, 1949, measure 18 in. high, 16½ in. wide, and 2 ft. 5 in. deep. They are made of steel and fixed in units of eight. By placing 6d. in a slot, a passenger obtains the key to a private locker in which he may deposit his luggage and withdraw it any time within 24 hours, after which if not collected the luggage is removed to the left luggage office.

British Railways, Southern Region, Lecture & Debating Society Annual Report.—On July 3, 1950, the British Railways, Southern Region, Lecture & Debating Society, celebrated its twenty-first anniversary, which was marked by a number of special events, including a presidential address by Mr. C. P. Hopkins, Chief Regional Officer, Southern Region. Other outstanding events were a twelve-day visit to the French Alps and Riviera in June, and a dinner at the Great Eastern Hotel in September. The Society produced a special souvenir programme as a permanent record of its activities during its twenty-one years. The new organisation provided for the appointment of a chairman, and Mr. R. A. Savill was elected to the position. Ten entrants were received for the prize essay competition, for which there was a choice of three subjects. Membership of the Society rose during the year to 1,350, an increase of 35 per cent.

Railway Students' Association Paris Convention.—The annual convention of the Railway Students' Association, London School of Economics & Political Science, this year will be held in Paris, from May 19 to 23. The party will leave London on the evening of Friday, May 18, and travel by the Night Ferry via Dover and Dunkirk, returning by the same service on the night of Wednesday, May 23. On the first day a paper entitled "Electric Traction as Applied to S.N.C.F. Main-Line Passenger and Freight Train Operation" will be read



W.D. heavy-freight locomotive, No. 70387, at Adabiya, near Suez, before the naming ceremony (see paragraph above)

OFFICIAL NOTICES

Crown Agents for the Colonies

TRAFFIC INSTRUCTOR required by the Gold Coast Government Railway for one tour of 18 to 24 months in the first instance. Commencing salary according to qualifications and experience in the scale 1934, rising to £1,114 (including allowances). Chief allowance payable. Gratuity of £25 for each 5 months' service on satisfactory completion of contract. Free passages. Liberal leave on full salary. Candidates, preferably under 35 years of age and members of the Institute of Transport, should have a thorough knowledge of electric train staff working, rule working, double line block system and safety regulations, a practical knowledge of all sections of passenger and goods station working, including accounts, rates and fares, claims, and a knowledge of centralised train control system, working of shunting yards, train running and traffic statistics. Knowledge of Morse telegraphy and of working at docks in regard to shipping and warehousing exports and imports is desirable. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this notice, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M.27288.E. on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will consider only with applicants selected for further consideration.

DIRECTORY OF RAILWAY OFFICIALS & YEAR BOOK. A useful reference book for railway officers, engineering firms, and all who do business with railways. The only Directory which enables one to find the right railway and the right officer at the right moment. Issued July each year. Price 30s. net. Totihill Press Limited, 33, Totihill Street, London, S.W.1.

by M. Marcel Garreau, head of the S.N.C.F. Electric Traction Division, and the same evening the party will be guests of the S.N.C.F. at a dinner. Visits to transport installations in Paris will include Gare Saint-Lazare (main-line and suburban traffic working), Gare de l'Est (inspection of pneumatic tyre train and trip to stabling depot), Gare d'Orsay (parcels distribution depot), Rue Sainte Anne (parcels collection depot), Tolbiac (mechanised freight depot), and Juvisy (mechanised marshalling yard and trip on Paris Dijon electrified line).

Hunter-Hazell Cable Collection.—In the display centre of British Insulated Callender's Cables Limited, 21, Bloomsbury Street, London, W.C.1, will be held from April 12-27 an exhibition illustrating the historical development of power cables from 1882. Known as the Hunter-Hazell Cable Collection, the display will consist of 91 items, built up from sources in this country and also in America, France, Germany, Italy, and Switzerland. Admission will be by ticket obtainable from 21, Bloomsbury Street, W.C.1, or from any of the branch offices. Applications should specify a choice of two dates.

Display of Rolling Stock Fittings.—During the past twelve months the foundries of Hale & Hale (Tipton) Limited have been dealing with steadily increasing orders for castings for railway transport systems. These orders, many of which are for overseas in the form of direct or indirect exports, include vacuum brake couplings and brake gear generally, permanent way fittings, carriage and van fittings, and so on. Examples of such fittings cast in Blackheart malleable iron and in Permalite high-duty alloy will be featured on the Hale & Hale stand at the Castle Bromwich section of the B.I.F. this year.

Hampstead Heath Station Modernisation Scheme.—The London Midland Region of British Railways has started work on a £42,000 scheme for the modernisation and repainting of the existing buildings and the rebuilding of the war damaged parts of Hampstead Heath Station. Platform buildings embodying large window waiting rooms and modern toilets will be built of reinforced concrete and a new auxiliary

THE PERUVIAN CORPORATION LTD.—Assistant to Chief of Traction, Peruvian Railways, age 26-30; qualifications: apprenticeship with steam locomotive builders, Higher National Certificate for mechanical engineering, or graduate of Institute of Mechanical Engineers, a knowledge of Spanish an advantage.—Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

WANTED for South American Railways—Traffic Learners. Age 20-25 years. Single; some knowledge of Spanish and railway working preferred. Contract three years, renewable. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

SENIOR and Junior Draughtsmen required with experience in the design of diesel-electric locomotives by large manufacturing concern in the Midlands. Men with sound steam and/or electric traction experience will be considered. Experience of bogie design would be an advantage. Please reply particulars of training, experience, salary required to Box 37, *The Railway Gazette*, 33, Totihill Street, London, S.W.1.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and wood-working equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21s. net. By post 21s. 9d. Totihill Press Limited, 33, Totihill Street, London, S.W.1.

booking office will be erected to deal with holiday crowds. Vitreous enamel station name and direction signs will be installed throughout, small name signs being provided at frequent intervals along the platforms, and supplemented by larger signs at the incoming ends. The advertising display will also be modernised. It is hoped to finish the work on the "Broad Street" platform in time for the August weekend, when over 10,000 passengers pass through the station.

Vote to End New Zealand Strike.—The 14,000 New Zealand railwaymen, on strike since February 27 in sympathy with dockers, have voted by a large majority to return to work.

Paris Transport Strike Ends.—The strike of Paris Metro and bus workers for higher wages has ended after lasting for 19 days. Full services were expected to be resumed on April 4. The terms accepted are those originally offered by the transport board. The strikers have lost a fortnight's wages, which the Government has agreed to spread over five months.

Restoration of Scottish Region Train Services.—The Scottish Region of British Railways announces that the main-line trains and connecting services restored during the Easter holidays will continue to run. Also, most of the other train services withdrawn on January 29 and on February 5 and 12 because of the fuel crisis, were restored as from April 2.

Southern Region Debating Society Essay Competition.—At a meeting of British Railways Lecture & Debating Society, held at the Chapter House, London Bridge, on April 3, Mr. C. P. Hopkins, President of the Society, and Chief Regional Officer, Southern Region, distributed the prizes in the essay competition. In presenting the prizes Mr. Hopkins stressed the value of an essay competition as a discipline of the mind and hoped the competition would continue to play a part in the Society's activities. Following the presentation, essays were read by Messrs. M. B. Sellars, first prize, and E. J. Pond, second prize, on the subject "What developments in the working or organisation of the railways

Government of Pakistan

APPLICATIONS are invited for three posts of Divisional/District Mechanical Engineer in the Motive Power and Mechanical Engineering Departments of the Pakistan Railway Service of Engineers. The posts are non-pensionable and will be on contract for three years. Pay Rs. 750-850-950 per month, according to experience, plus £30 per month overseas pay for a candidate of non-Asiatic domicile, with free passage (for self only) to Pakistan on appointment and from Pakistan on termination of contract. Duties: Operation, maintenance and repair of locomotives and other rolling stock. Qualifications: Pass in Sections A and B of A.M.I.Mech.E. (London); at least two years' training in various locomotive shops and drawing offices; at least five years' subsequent experience in mechanical and/or motive power department of a railway on the operating, repairs, maintenance and servicing of locomotives; experience in loco shed organisation and schedule repairs and servicing; at least 5 years' experience in a supervisory post. Candidates with experience of Pakistan of Indian Railways preferred. Age not more than 52 years. Application, on the form to be obtained on request, should be made to the High Commissioner for Pakistan, 35, Lowndes Square, London, S.W.1. Closing date April 30, 1951.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Totihill Street, London, S.W.1.

do you foresee?" Mr. B. H. Highwood, who read an essay on "What practical steps can be taken to improve freight transit time?" was awarded a consolation prize. The meeting, which was followed by the annual general meeting, concluded with comment on the entries by two of the judges, Mr. W. H. Glossop, Training & Education Officer, Railway Executive, and Mr. B. W. C. Cooke, Editor, *The Railway Gazette*.

Institute of Transport.—The Institute of Transport is holding an informal luncheon at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m. on April 17. The speaker will be Mr. Frank Owen, formerly Editor of the *Daily Mail*.

French Railways Limited.—The publicity department of French Railways Limited has been transferred to Room 118, Victoria Station, London, S.W.1 (telephone number TATE Gallery 0755), with the exception of the store and despatch sections, which remain at 179, Piccadilly, W.1.

New Insulation Co. Ltd.: Change of Name.—The name of the New Insulation Co. Ltd., Gloucester, has been changed, as from April 1, to Permalite Limited. The change is one of name only and involves no break of continuity or change of personnel from the existing organisation.

Special Trains for Scottish Cup Semi-Finals.—On March 31 no fewer than 27 special trains were run by the Scottish Region in connection with the semi-final of the Scottish Cup between Raith Rovers and Celtic at Hampden Park, Glasgow, and Hibernian and Motherwell at Tynecastle Park, Edinburgh.

Provident Mutual Life Assurance Association.—The latest accounts of the Provident Mutual Life Assurance Association, 25-31, Moorgate, London, E.C.2, show continued progress in 1950, and are an indication of the strong financial position built up by the Association over many years. The valuation discloses a surplus of £1,446,532 and the board has decided to distribute an amount of £1,068,899 among participating policy holders in the form of a reversionary

bonus. The rates of bonus declared on this occasion are 5s. per cent. higher than those of five years ago.

Good Running of F.A. Cup-Tie Trains.—A train seat was guaranteed each of the 12,500 football supporters carried by the North Eastern Region of British Railways in 23 special trains run for the two semi-final matches between Newcastle United and Wolverhampton Wanderers. No train carried more than its quota. On March 14, some 3,000 supporters in six trains travelled from Newcastle to Huddersfield, and on the previous Saturday, March 10, there were 17 trains from Newcastle to Sheffield, carrying 9,500 passengers. The trains which ran on March 10 all left Newcastle on time and reached destination with an average late arrival of only 2 min. On March 14 the six trains to Huddersfield were run with an average late arrival of 3 min. each.

British Aluminium Company Results.—The directors of the British Aluminium Co. Ltd. propose to maintain the dividend for 1950 on the £3 million old ordinary stock at 10 per cent. with a final payment of 6 per cent. A first and final dividend of 3 per cent. is recommended on the £2 million new ordinary stock issued during the year. Group trading profits were £550,900 higher at £2,089,259, after allowing £75,000 in respect of a revision in the basis of stock valuation. Total income of the group amounted to £2,112,771 as compared with £1,803,595 for 1949. Taxation takes £720,547, against £478,262, and the combined net profit comes out at £608,734, against £551,203.

Tyne Dock Railway Institute.—The Railway Ambulance Hall, Hudson Street, Tyne Dock, was officially opened as a Railway Institute on March 20. Attention will also be given to the development of a sports field at Simonside for the use of Institute members. The Mayor of South Shields, Councillor R. Bainbridge, a former railwayman and one of the founders of the Tyne Dock Railway Athletic Club, and the Mayor of Gateshead, Alderman S. C. B. Tyrrell, who was also a railwayman, were among those present when Mr. C. Cooper, Regional Staff Officer, North Eastern Region, formally

Railway Stock Market

The substantial surplus disclosed by revenue figures for the past financial year gave a fresh stimulus to the more hopeful Budget views which have been gaining ground. The rise in British Funds made further progress, and there was selective buying of industrial and a demand for gold shares, the latter being regarded as a hedge against tax increases because most of the Kaffir gold producers are registered outside the U.K. The sharp rally in gilt-edged stocks contrasts sharply with the reaction in evidence a fortnight ago, when fixed interest securities were being marked down because of the prospect of higher taxation, which it was pointed out would probably lead to switching into industrial equities and other shares offering a larger yield. This week there was a more hopeful attitude that income tax may not be increased. On the other hand it seems to be widely expected that profits tax may be stepped up from 30 per cent., although there are hopes that at the same time tax relief granted in respect of profits not distributed in dividends may also be raised. There are many leading industrial shares which still offer not unattractive yields on the basis of their dividends for last year and they have attracted buyers this week. It is realised, however, that an increase in profits tax would reduce considerably the scope for higher dividend payments from most companies. The City is still talking of the possibility that Mr. Gaitskell may introduce a capital gains tax which would lead to a big falling off in stock market business. On the other hand, should there be no very big increase in profits tax and a capital gains tax is not introduced, stock markets may rally strongly.

Foreign rails have been quiet and in many cases business was hardly adequate to test quotations. Following earlier small declines, buyers were inclined to come in for Leopoldina debentures, with the result that the 4 per cents, firmed up to 94 and the 6½ per cents. to 138. Leopoldina ordinary was 10½ and the preference stock 26½. Leopoldina Terminal 5 per cent. debentures have also been firmer at 92½ and the ordinary units were 1s. 1½d. Among other Brazilian stocks, Brazil Rail Bonds were 44½, San Paulo 10s. units eased to 14s. 3d., and Great Western of Brazil shares strengthened to 162s.

Canadian Pacific remained active, partly because of talk of higher dividend prospects, and changed hands up to close on 53. The preference and 4 per cent. debentures were 75 and 100½ respectively. White Pass & Yukon 5 per cent. debentures were 188 and the 6 per cents. 90 awaiting the expected scheme. A little selling led to a fairly sharp reaction in United of Havana stocks and the 1906 debentures were 16½. In other directions Antiofagasta ordinary and preference were 7½ and 51½ respectively. Nitrate Rails shares were 23s. 9d., and Taltal shares 16s. 6d. Although it is realised that in any case a considerable time would have to elapse before stockholders could receive their total pay-out Manila "A" bonds at 74 held all but a small part of their recent advance: the preference shares were 7s. 9d. In other directions Bolivar "C" debentures were 57 and La Guaira ordinary stock 84.

There has been rather more business in road transport shares. West Riding Automobile were active up to 52s. 6d., and Maidstone 70s., but Lancashire Transport eased to 55s. Southdown were 87s. 6d.

Engineering and kindred shares remained active, partly because of the view that now John Brown & Co., Ltd., is to give a share bonus of 100 per cent., partly from compensation for nationalised steel interests, other companies may also make a return from their steel compensation. Guest Keen at 55s. 6d. were active on hopes of an increase in the forthcoming dividend and a possible return of capital. Dividends of Cammell Laird and Vickers are pending; and both companies may also shortly make a decision on how they are to deal with their compensation in respect of interests in the English Steel Corporation.

Shares of locomotive builders and engineers were again helped by the impression created by recent results. Vulcan Foundry have been good up to 28s. 9d. on higher dividend talk, but, later, the price eased to 28s. 6d. Birmingham Carriage were 36s. 7½d. and Hurst Nelson 64s. North British Locomotive changed hands around 21s. 9d. and Beyer Peacock around 32s. T. W. Ward were 64s. 9d., Wagon Repairs 15s. 10½d., and Gloucester Wagon 16s. 6d. G. D. Peters 5s. shares were firm on further consideration of the financial results and have been dealt in around 17s.

Forthcoming Meetings

April 6 (Fri.).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.30 p.m. Brains Trust.

April 7 (Sat.).—Stephenson Locomotive Society, at 32, Russell Road, Kensington, London, W.14, at 3.30 p.m. Annual general meeting.

April 12 (Thu.).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. "Modern Developments in Electric Welding," by Mr. H. G. Taylor.

April 12 (Thu.).—Irish Railway Record Society. "The Sligo, Leitrim & Northern Counties Railway," by Mr. G. F. Egan, Chief Engineer, S.L. & N.C.R.

April 14 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, at Southport. "Relaying in Woodhead Tunnel," by Mr. H. Wilton.

opened the Institute in the unavoidable absence of Mr. H. A. Short, Chief Regional Officer. Mr. J. R. Fletcher, District Motive Power Superintendent, presided.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1948/49		Total 1949/50	Increase or decrease
South & Central America							
Antofagasta	811	Feb., 1951	£ 104,430	+ £ 41,340	12	£ 1,090,410	+ £ 316,220
Costa Rica	281	Jan., 1951	c1,039,485	+ c354,453	35	c8,375,739	+ c1,770,937
Dorada	70	Jan., 1951	41,557	+ 3,460	4	41,557	+ 3,460
Inter. Ctl. Amer.	794	Jan., 1951	\$1,315,344	+ \$28,708	4	\$1,315,344	+ \$28,708
La Guaira	22½	Sept., 1950	\$68,726	+ \$39,529	39	\$725,535	+ \$241,943
Nitrate	382	Sept., 1950	10,816	+ 8,656	32	286,336	+ 6,203
Paraguay Cent.	274	Feb., 1951	£ 187,420	+ £ 26,940	38	£ 7,739,235	+ £ 72,297,351
Peru Corp.	1,050	Feb., 1951	\$6,619,000	+ \$664,300	35	\$60,768,000	+ \$14,562,642
" (Bolivian Section)	66	Feb., 1951	Bs.11,856,000	+ Bs.2,510,000	35	Bs.96,257,000	+ Bs.14,518,836
Salvador	100	Jan., 1951	c314,000	+ c17,000	31	c1,083,000	+ c22,000
Taltal	154	Feb., 1951	\$1,734,098	+ \$427,696	35	\$12,596,791	+ \$2,153,180
Canada							
Canadian National	23,473	Feb., 1951	14,451,000	+ 2,199,000	8	30,086,000	+ 6,151,000
Canadian Pacific	17,037	Feb., 1951	10,318,000	+ 1,517,000	8	21,234,000	+ 4,251,000
Various							
Barsi Light	167	Feb., 1951	31,627	+ 8,325	48	317,595	+ 6,645
Egyptian Delta	607	10.10.50	18,245	+ 1,296	28	319,911	+ 24,005
Gold Coast	536	Jan., 1951	309,279	+ 176,104	44	2,574,365	+ 260,269
Mid. of N. Australia	277	Jan., 1951	41,990	+ 7,585	31	277,213	+ 65,652
Nigeria	1,900	Jan., 1950	502,360	+ 38,978	44	5,017,814	+ 264,573
South Africa	13,347	10.3.51	1,811,535	+ 380,722	49	84,403,659	+ 11,976,753
Victoria	4,744	Dec., 1950	1,299,615	+ 566,411	26	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1